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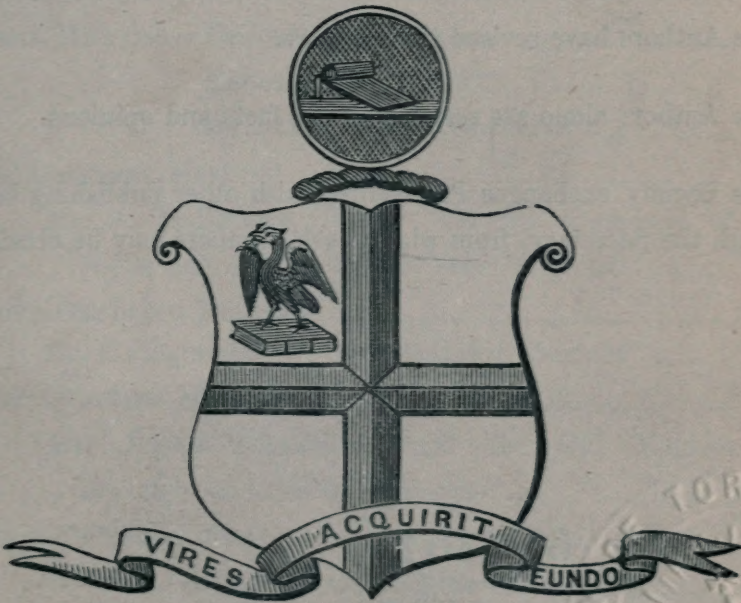
OF

LIVERPOOL,

DURING THE

FIFTY-FIFTH SESSION, 1865-66. -68

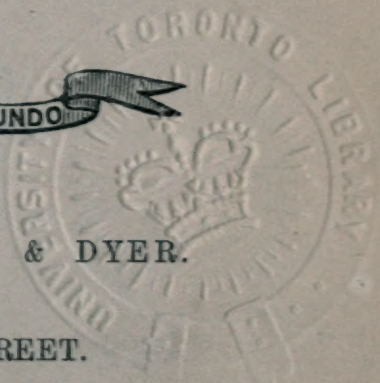
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LIVERPOOL:
DAVID MARPLES, LORD STREET.

1867. 1868



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The Authors have revised their Papers.

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Those marked † are Original Members of the Society.

Life Members are marked with an Asterisk.

Oct. 11, 1833 Aikin, James, 2, *Drury-lane*, and 4, *Gambier-terrace*.

Jan. 8, 1861 Anderson, David, 5, *Castle-street*, and 7, *Church street*,
Egremont.

March 7, 1864 Archer, F. jun., B.A. Trin. Coll., Cantab., 10, *Rodney-*
street, and 5, *Fenwick-street*.

*Nov. 28, 1853 Archer, T. C., F.R.S.E., F.R.S.S.A., Director of the
Industrial Museum, Scotland, *Edinburgh*.

Dec. 14, 1863 Ashe, Theop. Fielding, 45, *South Castle-street*, and 4,
Dingle-lane.

Feb. 22, 1855 Avison, Thomas, F.S.A., 18, *Cook-street*, and *Fulwood-*
park, *Aigburth*.

- Dec. 10, 1860 Barr, Rev. Hermann, Ph. D.
- Jan. 11, 1864 Bagshaw, John, 87, *Church-street*, and *Canning-terrace*,
201, *Upper Parliament-street*.
- May 1, 1854 Bahr, G. W., 4, *Cable-street*, and 2, *South-hill Grove*,
Aigburth.
- May 4, 1863 Bailey, Fras. J., M.R.C.S., 51, *Grove-street*.
- April 17, 1865 Baker, W. J., 24, *Fenwick-street*.
- Dec. 15, 1862 Balman, Thomas, M.D., 6, *Bedford-street South*.
- Oct. 29, 1860 Banister, Rev. W., B.A., *St. James's Mount*.
- Jan. 13, 1862 Baruchson, Arnold, 8, *Edmund-street*, and *Blundell-*
sands, *Great Crosby*.
- Nov. 3, 1862 Behrend, Saml. H., M.A., 24, *Clarendon Rooms*.
- March 9, 1857 Bell, Christopher, *Moor-street*, and 60, *Bridge-street*,
Birkenhead.
- Nov. 14, 1864 Bennett, J. M., *St. George's Buildings*, *Lime-street*,
and 109, *Shaw-street*.
- Feb. 6, 1854 Bennett, William, *St. George's-place*, *Lime-street*, and
Lancaster.
- Nov. 2, 1863 Billson, Alfred, 10, *Cook-street*, and 14, *Sandon-street*.
- Oct. 31, 1859 Birch, Jas., 13, *The Temple*, *Dale-street*.
- Jan. 25, 1864 Birchall, James, *Industrial Schools*, *Kirkdale*.
- April 15, 1861 Blake, James, 63, *Kitchen-street*, and 45, *Canning-street*.
- Mar. 9, 1866 Blood, William, *Chamber of Commerce*.
- Jan. 12, 1863 Bolton, Ogden, *Prince's Buildings*, *Harrington-street*,
and 10, *Great George-square*.
- *Mar. 6, 1835 Boulton, Swinton, 1, *Dale-st.*, and 3, *Bedford-street South*.
- Nov. 27, 1865 Biggs, Arthur Worthington, *Brown's Buildings*, and 76,
Upper Huskisson-street. (I. Cook and Sons.)
- Oct. 21, 1844 Bright, Samuel, 1, *North John-street*, and *Sandheys*,
Mill-lane, *West Derby*.
- *Jan. 8, 1855 Brockholes, James Fitzherbert, *Puddington Old Hall*,
near Neston.
- Oct. 31, 1864 Bromham, William, 57, *South John-street*, and 8,
Montpellier-terrace, *Upper Parliament-street*.
- Dec. 2, 1861 Browne, G. Mansfield, 15, *Fenwick-street*, and 15,
South-hill-road, *Toxteth-Park*.
- April 21, 1862 Bulley, Samuel, *Borough Buildings*, and *East Lodge*,
Prince's Park.
- April 18, 1864 Burne, Joseph, *Royal Insurance Office*, 1, *North John-*
street, and *Higher Tranmere*.

- Mar. 9, 1863 Buxton, David, F.R.S.L., Principal of the School for the Deaf and Dumb, *Oxford-street*.
- *May 1, 1848 Byerley, Isaac, F.L.S., F.R.C.S., *Victoria-road, Seacombe*, TREASURER.
- Feb. 23, 1863 Callon, W.J., M.D., 125, *Islington*.
- Nov. 3, 1862 Cameron, John, M.D., M.R.C.P., Physician to the Southern Hospital, and Lecturer on Medicine at Royal Inf. Sch. of Med., 17, *Rodney-street*.
- April 7, 1862 Campbell, John, *Liverpool and London Chambers*, and *Oak-house, Aigburth-hall-road*.
- Jan. 9, 1865 Cariss, Astrup, *Cook-street*, and 6, *Hope-place*.
- April 7, 1862 Cawkitt, James M., *Underwriters' Room, Exchange*, and 23, *Queen's-road, Everton*.
- Dec. 2, 1861 Chadburn, William, 71, *Lord-street*.
- Dec. 1, 1851 Clare, John Leigh, *Exchange-buildings*, and *The Old Hall, Aigburth-road*.
- Oct. 31, 1859 Clark, Charles, 17, *North John-street*, and *Linden Cottage, Rock Ferry*.
- Jan. 26, 1857 Clay, William, 97, *Sefton-street*, and 4, *Parkhill-road*.
- Jan. 22 1866, Cohen, Lewis, S., 44, *Ranelagh-street*.[☞]
- Jan. 26, 1863 Commins, Andrew, LL.D. Dub., *Clarendon-chambers*, 1, *South John-street*.
- Jan. 22, 1850 Cox, Henry, 21, *Exchange-alley*, and *Waterloo*.
- Oct. 6, 1862 Crosfield, Wm., jun., 28, *Temple-st.*, and *Alexandra-drive, Ullett-road*.
- Feb. 8, 1864 Cuthbert, J. R., 40, *Chapel-street*, and 40, *Huskisson-street*.
- Jan. 26, 1857 Dadabhai Naoroji, Professor of Gujurati, London University, 32, *Great St. Helens, London, E.C.*
- Nov. 2, 1863 Dawbarn, William, *The Temple, Dale-street*, and 99, *Shaw-street*.
- Nov. 27, 1848 Dove, Percy Matthew, F.S.S., 1, *North John-street*, and *Claughton*.
- Nov. 27, 1863 Dove, Jno. M., *Royal Insurance Office*, and *Claughton*.
- Jan. 23, 1848 Drysdale, John James, M.D. Edin., M.R.C.S. Edin., 44, *Rodney-street*.
- Oct. 5, 1863 Drysdale, W. G., 7, *Elm-terrace, Beech-street, Fairfield*, and 14, *East side Queen's Dock*.
- Feb. 4, 1856 Duckworth, Henry, F.L.S., F.R.G.S., F.G.S., 5, *Cook-street*, and 2, *Gambier-terrace*.

- *Nov. 27, 1848 Edwards, John Baker, Ph.D. Gies., F.C.S., *Montreal*.
VICE PRESIDENT.
- March 10, 1862 Ellison, Christopher O., *Adelphi-chambers, South John-street, and Esplanade, Waterloo*.
- April 7, 1862 English, Charles J., 26, *Chapel-street*, and 26, *Falkner-square*.
- Feb. 20, 1865 English, C. R., 26, *Falkner-square*.
- Dec. 14, 1863 Erskine, Robert,
- Nov. 27, 1865 Estill, Fred. Chas., 1, *Liverpool and London Chambers*.
- Nov. 18, 1850 Evans, Henry Sugden, F.C.S., 52, *Hanover-street*, and *Rainhill Mount, Rainhill*.
- April 30, 1860 Fabert, John Otto William, 1, *Parliament-street*, and 3, *St. James' Mount*.
- Oct. 31, 1864 Fearenside, William, 5, *Cook-street*, and *Seacombe*.
- *Dec. 13, 1852 Ferguson, William, F.L.S., F.G.S., *Oriel-chambers*, and 2, *St. Aidan's-terrace, Birkenhead*.
- Feb. 9, 1863 Finlay, William, Senior Mathematical Master, Middle School, *Liverpool College*, and 49, *Everton-road*.
- *April 3, 1837 Fletcher, Edward, 4, *India-buildings*, and 31, *High Park-street*.
- *Mar. 19, 1855 Foard, James Thomas, 5, *Essex-court, Temple, E.C*.
- *Feb. 6, 1854 Gee, Robert, M.D. Heidelb. M.R.C.P., Lecturer on Diseases of Children, Royal Infirmary School of Med.; Physician, Workhouse Hospital; 5, *Abercromby-square*.
- March 4, 1861 Ginsburg, Rev. Christian D., LL.D. Glasg., *Brooklea, Aigburth-road*. VICE PRESIDENT.
- Feb. 20, 1865 Gordon, Rev. A., M.A., 49, *Upper Parliament-street*.
- Dec. 2, 1861 Graves, Samuel R., M.P., *Baltic-buildings*, and *The Grange, Wavertree*.
- Oct. 5, 1863 Gray, Jno. M'Farlane, *Vauxhall Foundry*, and 80, *Prince Edwin-street*.
- Nov. 14, 1853 Greenwood, Henry, 32, *Castle-street*, and *Roseville, Huyton*.
- Jan. 22, 1855 Hakes, James, M.R.C.S., Surgeon to the Northern Hospital, *Hope-street*.
- Feb. 23, 1863 Hall, Charlton R. 17, *Dale street*, and 111, *Shaw-street*.
- *Jan. 21, 1856 Hardman, Lawrence, 5, *India-buildings*, and *Rock-park, Rock Ferry*.

- Feb. 9, 1863 Hart, Thos. Aubrey, M.A. Oxon, 81, *Bedford-street South*.
- Feb. 6, 1865 Hassan, Rev. E. *Alma-terrace, Sandown-lane*.
- Nov. 13, 1865 Hayward, John Williams, M.D., 15, *Mount Vernon-road*.
- Feb. 6, 1865 Hebson, Douglas, 13, *Tower-chambers*, and 58, *Bedford-street South*.
- March 6, 1865 Hey, John, M.R.C.S., 126, *Islington*.
- Dec. 28, 1846 Higgins, Rev. H. H., M.A. Cantab., F.C.P.S., *Rainhill*.
- *Oct. 31, 1836 Higginson, Alfred, M.R.C.S., Surg. Southern Hosp., 44, *Upper Parliament-street*.
- Nov. 16, 1863 Holden, Adam, 48, *Church-street*, and 6, *Carlton-terrace, Milton-road*.
- Nov. 13, 1854 Holland, Charles, 70, *Tower-buildings South*, and *Liscard-vale, New Brighton*.
- *Dec. 14, 1862 Holt, Robert Durning, 6, *India-buildings*, and 2, *Rake-lane*.
- March 22, 1847 Horner, Henry P., 2 *Derby-square*, and 5, *Devonshire-road, Prince's-park*.
- Jan. 9, 1865 Howse, Rev. E., 4, *Bold-street, Southport*.
- Nov. 4, 1850 Howson, Rev. John S., D.D. Trin. Col., Cantab., *Wisbeach Rectory*.
- Dec. 27, 1841 Hume, Rev. Abraham, D.C.L. Dub., LL.D. Glas., F.S.A., 24, *Fitz-Clarence-street, Everton*.
- Nov. 28, 1864 Humphreys, William, *Vauxhall Foundry*.
- *Nov. 13, 1854 Hunter, John, Member Hist. Society Pennsylvania, *Halifax, Nova Scotia*.
- Jan. 13, 1862 Hutchison, Robert, *Barned's-buildings, Sweeting-street*, and 6, *Canning-street*.
- Jan. 26, 1857 Hutton, David, 3, *St. George's-crescent*, and 61, *Canning-street*.
- *April 29, 1850 Ihne, William, Ph. D. Bonn, *Villa Felseck, Heidelberg*.
- Feb. 23, 1857 Imlach, Henry, M.D. Edin., 1, *Abercromby-square*.
- Nov. 14, 1864 Imlach, Henry, jun., 1, *Abercromby-square*.
- *Oct. 21, 1844 Inman, Thomas, M.D. London, M.R.C.P., Physician Royal Infirmary, 12, *Rodney-st.*, and *Spital, Cheshire*.
- Nov. 28, 1864 Jeffery, F. J., *Compton House*, and *Woolton Hall, Woolton*.
- March 10, 1862 Johnson, Richard, *Queen Insurance Buildings*, and *Brookfield House, Seaforth*.

- Jan. 26, 1863 Johnson, Richard jun., *Queen Insurance-buildings*.
- March 9, 1863 Jones, Rev. Joshua, M.A. Oxon, King William's College, *Isle of Man*.
- *April 4, 1852 Jones, Morris Charles, *Queen Insurance-buildings*, and 75, *Shaw-street*.
- May 5, 1851 Jones, Roger Lyon, *Liverpool and London-chambers, Exchange*, and 6, *Sunnyside, Prince's-park*.
- April 2, 1866 Jones, Rev. J. S. 3, *Clare-street*.
- Oct. 2, 1865 Kendal, Robinson, 15, *Water-street*.
- Feb. 19, 1855 King, Alfred, 14, *Newington*, and 9, *Netherfield-road South*.
- Feb. 20, 1865 Lalcaca, Dhunjeeshaw Moneckjee, *Mawdsley-chambers*, 8, *Castle-street*, and 6, *Ashleigh, Anfield*.
- Jan. 10, 1848 Lamport, William James, 21, *Water-street*, and 5, *Beech-terrace, Beech-street, Fairfield*.
- *Jan. 14, 1839 Lassell, William, F.R.SS. L. and E., F.R.A.S., 27, *Milton-street*.
- April 27, 1862 Lassell, William, jun., 27, *Milton-street*, and *Tuebrook*.
- Oct. 21, 1844 Lear, John, 14, *Cook-street*, and 22, *Holland-terrace, Duke-street, Edge Hill*.
- Feb. 10, 1862 Leycester, Edmund Mortimore, Commander R.N., *Admiralty Office*, 2, *Drury-lane*, and 20, *Belvedere-road, Prince's-park*.
- Dec. 10, 1860 Leyland, Joseph, *Williamson-square*.
- May 4, 1863 Lister, James, *Union Bank*, 6, *Brunswick-street*.
- Oct. 20, 1859 M'Andrew, James Johnston, 24, *North John-street*, and *Greenfield Cottage, Bromborough*.
- *Oct. 21, 1844 M'Andrew, Robert, F.R.S., F.L.S., *Isleworth House, Isleworth, London*.
- April 17, 1865 MacCheane, Wm., M.R.C.S., 69, *Shaw-street*.
- March 9, 1857 MacFie, Robert Andrew, 30, *Moorfields*, and *Ashfield Hall, Neston, Cheshire*.
- April 2, 1866 McMullen, James A. *Huyton*.
- April 20, 1863 Marples, David, 50B, *Lord-street*, and 168, *Chatham-st.*
- Jan. 21, 1839 Martin, Studley, 30, *Exchange*, and 109, *Bedford-st. S.*
- Feb. 5, 1844 Mayer, Joseph, F.S.A., F.R.A.S., F.E.S., 68, *Lord-street*, and *Pennant's House, Lower Bebington*.
- Jan 12, 1863 Mellor, Rev. Enoch, M.A., 18, *Devonshire-rd., Prince's park*.
- April 1, 1861 Melly, George, 7, *Water-street*, and 90, *Chatham-street*.

- Oct. 31, 1859 Moore, Thomas John, Corr. Mem. Z.S., Curator Free Public Museum, *William Brown-street*.
- Jan. 8, 1855 Morton, George Highfield, F.G.S., 9, *London-road*.
- April 16, 1849 Moss, Rev. John James, B.A., *Upton, Cheshire*.
- Oct. 29, 1850 Mott, Albert Julius, *Church-street*, and *Waterloo*.
- April 3, 1854 Mott, Charles Grey, 27, *Argyle-street, Birkenhead*.
- Nov. 27, 1865 Mountfield, William, 301, *Upper Parliament-street*.
- Oct. 20, 1856 Nevins, John Birkbeck, M.D., Lond., M.R.C.S., Lect. on Materia Medica, Royal Infirmary School of Medicine, 25, *Oxford-street*. VICE PRESIDENT.
- April 7, 1862 Newlands, A., 6, *Rumford-Place*, and 19 *Peel-terrace, Upper Canning-street*.
- Feb. 6, 1865 Newton, John, M.R.C.S., 13, *West Derby-street*.
- *Nov. 29, 1847 Nisbet, William, L.F.P.S.G., *Church-street, Egremont*.
- *Oct. 15, 1855 North, Alfred, 20, *York Crescent, Clifton*.
- Nov. 18, 1861 Nugent, Rev. James, *Crosby*.
- Dec. 11, 1865 Odgers, Rev. J. Edwin, 25, *Falkner-street*.
- Nov. 4, 1861 Philip, Thomas D., 49, *South Castle-street*, and 47, *Prospect-vale, Fairfield*.
- Dec. 28, 1846 Picton, James Allanson, F.S.A., Chairman of the Library and Museum Committee, 11, *Dale-street* and *Sandy-knowe, Wavertree*. PRESIDENT.
- April 30, 1866 Praag, Rev. James, 29, *Mount-street*.
- Feb. 6, 1854 Prange, F., *Royal Bank Buildings, Dale-street*, and 2, *Grove-park, Lodge-lane*.
- Jan. 22, 1866 Raffles, William Winter, 54, *Brown's Buildings*, and *Sunnyside, Prince's-park*.
- April 7, 1862 Rankin, Robert, Chairman of the Dock Board, 55, *South John Street*, and *Brombro' Hall, Cheshire*.
- †Mar. 13, 1812 Rathbone, William, 21, *Water-street*, and *Greenbank, Wavertree*.
- Nov. 12, 1860 Rathbone, Philip H., 4, *Water-street*, and *Greenbank, cottage, Wavertree*.
- Mar. 24, 1862 Rathbone, Richard Reynolds, 21, *Water-street*, and *Laurel Bank, St. Michael's-road*.
- *Jan. 7, 1856 Rawlins, Charles Edward, jun., 23, *Cable-street*, and 1, *Windermere-terrace, Prince's Park*.
- *Nov. 17, 1851 Redish, Joseph Carter, 18, *Chapel-street*, and 15, *Sandon-street*. HON. SECRETARY.
- Nov. 2, 1840 Robberds, Rev. John, B.A., 58, *High Park-street*.

- Jan. 25, 1864 Roberts, F.T., M.B., B.Sc. London, M.R.C.S., *Northern Hospital*.
- Feb. 9, 1863 Ronald, Lionel K., 19, *Dale-street*, and *Broad Green*.
- April 18, 1854 Rowe, James, 16, *South Castle-street*, and 51, *Shaw-street*.
- Feb. 6, 1865 Rowlandson, William, jun., *Vauxhall Foundry*.
- Feb. 20, 1865 Samuel, Albert H., 52, *Hanover-street*, and *Canning-terrace*, *Upper Parliament-street*.
- April 16, 1866 Samuel, Charles S., 14, *Canning-street*.
- April 7, 1862 Samuel, Harry S., 11, *Orange-court*, and 2, *Canning-street*.
- Nov. 13, 1865 Samuelson, Edward, 54, *Hanover-street*, and *Huyton*.
- Jan. 11, 1864 Samuelson, James, 18, *Dale-street*, and *New Brighton*.
- March 19, 1866 Sephton, Rev. John, M.A., *Liverpool Institute*.
- Nov. 28, 1864 Scott, Rev. Edward, *Isle of Man*.
- Nov. 16, 1863 Sheldon, E. M., M.R.C.S., 256, *Vauxhall-road*.
- Nov. 2, 1863 Skillicorn, John E., *Whitley-terrace*, 206, *Walton-road*.
- Nov. 7, 1864 Skinner, Thomas, M.D. Edin., 1, *St. James's Road*.
- *April 21, 1862 Smith, James, *Barkeley House*, *Seaforth*, and 7, *Water-Street*.
- †Mar. 13, 1812 Smith, James Houlbroke, 28, *Rodney-street*, and *Greenhill*, *Allerton*.
- Feb. 23, 1863 Smith, J. Simm, *Royal Insurance Office*, *Dale-street*.
- Feb. 24, 1862 Snape, Joseph, Lecturer on Dental Surgery, Royal Infirmary School of Medicine, 75, *Rodney-street*.
- Nov. 12, 1860 Spence, Charles, 4, *Oldhall-street*.
- Feb. 10, 1862 Spence, James, 5, *Fenwick-st.*, and 10, *Abercromby-sq.*
- Nov. 27, 1865 Spola, Luigi, LL.D., 1, *Lully-Street*, *Grove-street*.
- Jan. 22, 1866 St. Clair, Wm., 4, *Trafalgar-road*, *North Egremont*.
- Dec. 14, 1857 Steele, Robert Topham, 4, *Water-street*, and *Wavertree*.
- Jan. 9, 1865 Stewart, Robert E., L.D.S., R.C.S., Dental Surgeon Southern Hospital, and Liverpool Dental Hospital, 13, *Rodney-street*.
- Oct. 18, 1858 Stuart, Richard, 10, *Exchange-street East*, and *Brooklyn Villa*, *Breeze-hill*, *Walton*.
- *Feb. 19, 1855 Taylor, John Stopford, M.D. Aberd., F.R.G.S., 1, *Springfield*, *St. Anne-street*.
- Jan. 23, 1843 Taylor, Robert Hibbert, M.D. Edin., L.R.C.S. Ed., Lect. on Ophthalmic Medicine, Royal Infirmary School of Medicine, 1, *Percy-street*.

- Jan. 8, 1866 Thomson, James, 370, *Mill-street, Toxteth Park.*
- Dec. 11, 1854 Thompson, Samuel H., *Thingwall Hall, Knotty Ash.*
- Nov. 17, 1850 Tinling, Chas., 44, *Cable-street*, and 34, *Onslow-road, Elm-park.*
- Nov. 26, 1860 Tooke, William H., *Wellington-street, Waterloo.*
- Dec. 1, 1851 Towson, John Thomas, F.R.G.S., Scientific Examiner, Sailors' Home, 47, *Upper Parliament-street.*
- *Feb. 19, 1844 Turnbull, James Muter, M.D. Edin., M.R.C.P., Phys. Royal Infirmary, 86, *Rodney-street.*
- Oct. 21, 1861 Unwin, William Andrew, 11, *Rumford-place*, and *Newbie-terrace.*
- Feb. 6, 1865 Vernon, Thomas Holmes, *Woolton.*
- Feb. 6, 1865 Vernon, Walter, *Woolton.*
- Oct. 21, 1844 Vose, James Richard White, M.D. Edin., F.R.C.P., Phys. Royal Infirmary, 5, *Gambier-terrace.*
- Mar. 18, 1861 Walker, Thomas Shadford, M.R.C.S., 30, *Rodney-street.*
- Jan. 27, 1862 Walmsley, Gilbert G., 50, *Lord-street.*
- Jan. 9, 1865 Walthew, William, *Phœnix Chambers*, and *Vine Cottage, Aughton.*
- Dec. 2, 1861 Weightman, William Henry, *Leith Offices, Moorfields*, and *Hapsford-lane, Litherland.*
- Nov. 28, 1864 Weld, Walter, 12, *Castle-st.*, & *Moor-lane, Great Crosby.*
- April 7, 1862 Whittle, Ewing, M.D., Lecturer on Med. Jurisprudence, Royal Inf. Sch. of Med., 65, *Catherine-street.*
- Nov. 2, 1863 Whitty, W. Alfred, "*Daily Post*" Office, and 8, *Catherine-street.*
- April 7, 1862 Willans, Thomas H., 82, *Rodney-street.*
- Mar. 18, 1861 Wood, Geo. S., 20, *Lord-st.*, and *Bellevue-rd., Wavertree.*
- Dec. 14, 1863 Zwilchenbart, Rodolph, jun., *Queen Insurance Buildings*, and 26, *Bedford-street South.*

HONORARY MEMBERS,

LIMITED TO FIFTY.

- 1.—1812 Peter Mark Roget, M.D. Edin., F.R.C.P., F.R.S., F.G.S., F.R.A.S., F.R.G.S., &c., 18, *Upper Bedford-place, London.*
- 2.—1819 John Stanley, M.D. Edin, *Whitehaven.*
- 3.—1827 Rev. William Hincks, F.R.S.E., F.L.S., Professor of Natural History in University College, *Toronto, C.W.*
- 4.—1828 Rev. Brook Aspland, *Dukinfield, Cheshire.*
- 5.—1833 The Right Hon. Dudley Ryder, Earl of Harrowby, K.G., D.C.L., F.R.S., *Sandon-hall, Staffordshire*, and 39, *Grosvenor-square, London, W.*
- 6.—1833 James Yates, M.A., F.R.S., F.L.S., F.G.S., &c., *Lauderdale House, Highgate, London.*
- 7.—1835 George Patten, A.R.A., 21, *Queen's-road West, Regent's-park, London*
- 8.—1835 William Ewart, M.P., *Cambridge-square, Hyde-park, London.*
- 9.—1835 The Right Hon. Lord Brougham and Vaux, M.A., D.C.L., F.R.S., Chancellor of the University of Edinburgh, 4, *Grafton-street, London, W.*, and *Brougham Hall, Penrith.*
- 10.—1836 The Most Noble William, Duke of Devonshire, K.G., M.A., F.R.S., F.G.S., &c., Chancellor of the University of Cambridge, *Devonshire House, London, W.*, and *Chatsworth, Derbyshire.*
- 11.—1838 George Biddell Airy, M.A., D.C.L., F.R.S., Hon. F.R.S.E., Hon. M.R.I.A., V.P.R.A.S., F.C.P.S., &c., Astronomer Royal, *Royal Observatory, Greenwich.*
- 12.—1840 James Nasmyth, F.R.A.S., *Penshurst, Kent.*
- 13.—1840 Richard Duncan Mackintosh, L.R.C.P., *Exeter.*
- 14.—1841 Charles Bryce, M.D. Glasg., Fell. F.P.S.G., *Brighton.*
- 15.—1844 J. Beete Jukes, M.A., F.R.S., M.R.I.A., F.G.S., Local Director of the Geological Survey of Ireland, 51, *Stephen's-Green, Dublin,*

- 16.—1844 T. P. Hall, *Coggeshall, Essex.*
- 17.—1844 Peter Rylands, *Warrington.*
- 18.—1844 John Scouler, M.D., LL.D., F.L.S.
- 19.—1844 Thomas Rymer Jones, F.R.S., F.Z.S., F.L.S., Professor of
Comparative Anatomy, *King's College, London.*
- 20.—1844 Robert Patterson, F.R.S., M.R.I.A, *Belfast.*
- 21.—1854 Sir Charles Lemon, Bart. M.A. Cantab., F.R.S., F.G.S.,
Penrhyn, Cornwall.
- 22.—1844 William Carpenter, M.D. Edin., F.R.S., F.L.S., F.G.S.,
Registrar, *London University.*
- 23.—1848 Rev. Thomas Corser, M.A., *Strand, Bury.*
- 24.—1850 Rev. St. Vincent Beechy, M.A. Cantab., *Worsley, near Eccles.*
- 25.—1851 James Smith, F.R.S.S.L., and E., F.G.S., F.R.G.S., *Jordan-
hill, Glasgow.*
- 26.—1851 Henry Clarke Pidgeon, *London.*
- 27.—1851 Rev. Robert Bickersteth Mayor, M.A., Fell. St. John's
College, Cantab., F.C.P.S., *Rugby.*
- 28.—1852 William Reynolds, M.D., *Coed-du, Denbighshire.*
- 29.—1853 Rev. James Booth, LL.D., F.R.S., &c., *Stone, near Aylesbury.*
- 30.—1857 Thomas Jos. Hutchison, F.R.G.S., F.R.S.L., F.E.S.,
H.B.M. Consul, *Rosario.*
- 31.—1861 Louis Agassiz, Professor of Natural History in Harvard
University, *Cambridge, Massachusetts.*
- 32.—1862 William Fairbairn, LL.D., C.E., F.R.S., *Polygon, near
Manchester.*
- 33.—1861 Rev. Thomas P. Kirkman, M.A., F.R.S., *Croft Rectory,
Warrington.*
- 34.—1862 The Right Rev. H. N. Staley, D.D., Bishop of Honolulu,
Sandwich Islands.
- 35.—1863 Edward J. Reed, Chief Constructor of H. M. Navy,
Admiralty, and Hyde Vale, Greenwich, S.E.
- 36.—1865 John Edward Gray, Ph. D., F.R.S., &c., *British Museum.*
- 37.—1865 George Rolleston, M.D., F.R.S., Linacre Professor of
Physiology in the University of Oxford, *Oxford*
- 38.—1866 Cuthbert Collingwood, M.A. and M.B. Oxon. F.L.S.

ASSOCIATES.

LIMITED TO TWENTY-FIVE.

- 1.—Dec. 2, 1861 Captain Sir James Anderson, "Great Eastern."
(Atlantic.)
- 2.—Jan. 27, 1862 Captain John H. Mortimer, "America," (Atlantic.)
- 3.—March 24, 1862 Captain P. C. Petrie, "City of London," Commo-
dore of the Inman Line of American Steam
Packets. (Atlantic.)
- 4.—Feb. 9, 1863 Captain James P. Anderson, R.M.S.S. "Africa,"
Cunard Service. (Atlantic.)
- 5.—Feb. 5, 1863 Captain John Carr, (Bushby and Edwards,) ship
"Scindia," (Calcutta.)
- 6.—Feb. 9, 1863 Captain Charles E. Price, R.N.R., (L. Young
and Co.) ship "Cornwallis." (Calcutta and
Sydney.)
- 7.—April 20, 1863 Captain Fred. E. Baker, ship "Nippon."
(Chinese Seas.)
- 8.—Oct. 31, 1864 Captain Thompson, ship "Admiral Lyons."
(Bombay.)
- 9.—Oct. 31, 1863 Captain Edward Berry, ship "Richard Cobden."
(Chili.)
- 10.—Oct. 31, 1864 Captain Alexander Browne, (Papayanni,) s. s.
"Agia Sofia." (Mediterranean.)
- 11.—Oct. 31, 1864 Captain Whiteway, ship "Annie Cheshyre."
(Pacific.)
- 12.—April 13, 1865 Captain Alexander Cameron, (Boult, English,
and Brandon,) ship "Staffordshire." (Shanghai.)
- 13.—Dec. 11, 1865 Captain Walker, ship "Trenton."

ADDITIONS TO THE LIBRARY,

RECEIVED FROM MAY, 1865, TO MAY, 1866.

	Title.	Donor.
1865,		
OCTOBER 2nd.		
Essays on the Roman Invasions of Britain, by the Astronomer Royal		<i>The Author.</i>
Journal of the Chemical Society, ser. 2, vol. 3, May-August		<i>The Society.</i>
Journal of the Royal Asiatic Society, N. S., vol. 1, part 2		<i>The Society.</i>
Journal of the Statistical Society, vol. 28, part 2,		<i>The Society.</i>
Journal of the Linnæan Society, Botany, vol. 9, nos. 33-34		<i>The Society.</i>
Journal of the Royal Geographical Society, vol. 34		<i>The Society.</i>
Proceedings of the Royal Geographical Society, vol. 9, nos. 3 and 4		<i>The Society.</i>
Sir R. Murchison's Address to the Royal Geo- graphical Society, May, 1865		<i>The Author.</i>
Proceedings of the Zoological Society, 1864, 3 numbers		<i>The Society.</i>
Quarterly Journal of the Geological Society, nos. 82 and 83		<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, vol. 25, nos. 5-8		<i>The Society.</i>
Proceedings of the Natural History Society of Dublin, vol. 4, part 2		<i>The Society.</i>
Proceedings of the Geologists' Association, vol. 1, no. 11		<i>The Association.</i>
Proceedings of the Royal Society, vol. 14, nos. 74-77		<i>The Society.</i>

Title.	Donor.
Proceedings of the Society of Antiquaries, 2nd ser. vol. 2, no. 6	<i>The Society.</i>
Proceedings of the British Meteorological Society, vol. 2, nos. 18 and 19	<i>The Society.</i>
Journal of the Scottish Meteorological Society, N. S., nos. 6 and 7	<i>The Society.</i>
Proceedings of the Historic Society, N. S., vol. 4	<i>The Society.</i>
Proceedings of the Academy of Natural Sciences of Philadelphia, for 1864, 5 nos.	<i>The Academy.</i>
Canadian Journal of Industry, N. S., nos. 56-58	<i>Canadian Institute.</i>
Catalogue of the American Philosophical Society's Library, part 1	<i>The Society.</i>
Journal of the Franklin Institute, nos. 469-474,	<i>The Institute.</i>
Report of the Liverpool Naturalists' Field Club, 1864-5	<i>The Club.</i>
Proceedings of the Liverpool Geological Society, 1864-5	<i>The Society,</i>
Ninth Annual Report of the Birkenhead Free Public Library	<i>The Committee.</i>
Proceedings of the Liverpool Philomathic Society, vol. 10	<i>The Society.</i>
Report of the Hull Literary and Philosophical Society for 1865	<i>The Society.</i>
American Geographical and Statistical Society	<i>The Society.</i>
Mittheilungen der Kaiserlichen, K. Gesellschaft von Wien, 1863-64, 2 parts	<i>The Society.</i>
Correspondenzenblatt des Vereins für Naturkunde, zur Presburg, 1863	<i>The Society.</i>
Memorie Storie Politiche sul' Antichi Greci e Romani, de Christ. Negri.	<i>The Society.</i>
Memorie del Reale Istituto Lombardo—Classe di Lettere, vol. 10, fasc. 1; Classe di Scienze Mathematiche, vol. 10, fasc. 1	<i>The Society.</i>
Journal of the Society of Arts, May to October	<i>The Society.</i>

Title.	Donor.
Rendiconti — Classe di Lettere, 3 nos.; Classe di Scienze, 4 nos.	<i>The Society.</i>

OCTOBER 16th.

Smithsonian Contributions to Science, vol. 14	<i>Smithsonian Institute.</i>
Results of Meteorological Observations, vol. 2, part 1, 1854-59	<i>The Society.</i>
Smithsonian Report, 1863	<i>Smithsonian Institute.</i>
Proceedings of the Boston Natural History Society, vols. 3, 4, 5, 6, and part of 7 and 9	<i>The Society.</i>
Boston Journal of Natural History, vol. 4, parts 3 and 4, vols. 5 and 6	<i>The Society.</i>
Proceedings of the American Philosophical Society, Nos. 71 and 72	<i>The Society.</i>
Proceedings of the American Academy of Arts and Sciences, continuation	<i>The Academy.</i>
Annals of the Lyceum of Natural History, of New York, vol. 8, nos. 2 and 3	<i>The Society.</i>
Report of the British Association, Bath, 1864,	<i>Dr. Inman.</i>
Journal of the Linnæan Society, no. 35	<i>The Society.</i>
Journal of the Statistical Society, September, 1865	<i>The Society.</i>
Proceedings of the Royal Geographical Society, vol. 9, no. 6	<i>The Society.</i>
Proceedings of the British Meteorological Society, vol. 2, no. 20	<i>The Society.</i>
The Anthropological Review, No. 11	<i>The Editor.</i>
Journal of the Society of Arts	<i>The Society.</i>

OCTOBER 30th.

Journal of the Chemical Society, sec. 2, vol. 3 (part)	<i>The Society.</i>
Proceedings of the Royal Institution of Great Britain, Nos. 41-2	<i>The Institution.</i>
Monthly Notices of the Royal Astronomical Society, vol. 25, no. 9	<i>The Society.</i>

Title.	Donor.
Journal of the Franklin Institute, Nos. 475-76	<i>The Institute.</i>
Elfter Bericht der Oberhessischen Gesellschaft	<i>The Society.</i>
Journal of the Society of Arts, 2 nos.	<i>The Society.</i>

NOVEMBER 13th.

Report of the Manchester Scientific Students' Association, 1864	<i>The Society.</i>
Journal of the Scottish Meteorological Society, October, 1865	<i>The Society.</i>
Journal of the Society of Arts, 2 Nos.	<i>The Society.</i>
Patent Office Report, Washington, 2 vols., 1862	<i>Patent Office, Washington.</i>

NOVEMBER 27th.

Proceedings of the British Meteorological Society	<i>The Society.</i>
Quarterly Journal of the Geological Society, vol. 21, Part 4	<i>The Society.</i>
Journal of the Chemical Society, Oct., 1865	<i>The Society.</i>
Transactions of the Botanical Society, vol. 8, part 2	<i>The Society.</i>
Journal of the Society of Arts	<i>The Society.</i>

DECEMBER 11th.

Greenwich Observations, 1863, and Paramatta Catalogue of 7,385 Stars	<i>The Astronomer Royal.</i>
Proceedings of the Birkenhead Literary and Scientific Society, 1864-5	<i>The Society.</i>
Seventeenth Annual Report of the Royal Free Library, &c., of Salford	<i>The Committee.</i>
Thirty-second Annual Report of the Royal Cornwall Polytechnic Society	<i>The Society.</i>
Journal of the Society of Arts, two numbers	<i>The Society.</i>
Report of the Halifax Literary and Philosophical Society, 1865	<i>The Society.</i>
Canadian Journal of Industry, no. 69	<i>Canadian Institute.</i>
Journal of the Franklin Institute, nos. 477-8	<i>The Institute.</i>

Title.	Donor.
Journal of the Chymical Society, Nov., 1865	<i>The Society.</i>
Medico-chirurgical Transactions, vol. 48	<i>The Society.</i>
Journal of the Linnaean Society, Zoology, nos. 31 and 32	<i>The Society.</i>
1866,	
JANUARY 8th.	
Proceedings of the Zoological Society, 1830-1-49	<i>The Society.</i>
Proceedings of the Royal Astronomical Society, vol. 26, no. 1	<i>The Society.</i>
Proceedings of the Royal Geographical Society, vol. 10, no. 1	<i>The Society.</i>
Proceedings of the Royal Society, vol. 14, no. 78.	<i>The Society.</i>
Journal of Liverpool Polytechnic Society, 28th session, 9th meeting	<i>The Society.</i>
Journal of Society of Arts, vol. 14, nos. 682, 684-5	<i>The Society.</i>
Proceedings of the Royal Irish Academy, vol. 7, 1857-1861, vol. 8, 1861-1864, vol. 9, part 1	<i>The Academy.</i>
Transactions of the Royal Irish Academy, vol. 24, Science, parts 4 and 6, Polite Litera- ture, part 2, Antiquities, parts 2-4	<i>The Society.</i>
Observations on the Functions of the Liver, by Robert M'Donnell, M. D.	<i>The Author.</i>
JANUARY 22nd.	
Journal of the Chemical Society, series 2, vol. 3	<i>The Society.</i>
Transactions of the Plymouth Institution, 1864-5	<i>The Institute.</i>
Proceedings of the Royal Society, vol. 14, no. 79	<i>The Society.</i>
Popular Magazine of Anthropology, No. 1	<i>The Editor.</i>
Proceedings of the British Meteorological Society, vol. 3, No. 21	<i>The Society.</i>
Journal of the Statistical Society, vol. 28, part 4	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, vol. 26, No. 2	<i>The Society.</i>
Journal of the Society of Arts, no. 686, vol. 14	<i>The Society.</i>

Title.	Donor.
Report of the Whitby Literary and Philosophical Society	<i>The Society.</i>
An essay, entitled "Die Entstehung der Servianischen Verfassung," by Dr. Ihne, formerly President of the Society	<i>The Author.</i>

FEBRUARY 5th.

Journal of the Franklin Institute, 479, 480	<i>The Institute.</i>
Canadian Journal of Industry, no. 60, new series	<i>Canadian Institute.</i>
Journal of the Royal Geographical Society of Scotland, vol. 1, part 1	<i>The Society.</i>
Proceedings of the Royal Society, no. 80	<i>The Society.</i>
Transactions of the Royal Scottish Society of Arts, vol. 7, part 1	<i>The Society.</i>
Thirteenth Annual Report of the Free Public Museum, Liverpool	<i>The Committee.</i>
Journal of the Society of Arts	<i>The Society.</i>
Proceedings of the Institute of Mechanical Engineers	<i>The Institute.</i>

FEBRUARY 19th.

Journal of the Linnæan Society, vol. 9, no. 36	<i>The Society.</i>
Journal of the Scottish Meteorological Society, no. 9	<i>The Society.</i>
Journal of the Society of Arts, vol. 14, nos. 690-1	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, vol. 26, no. 3	<i>The Society.</i>

MARCH 9th.

Manchester Free Public Library Catalogue	<i>The Committee.</i>
Manifesto of the Minister of Foreign Affairs of Chili, on the present war between the Republic and Spain	<i>The Author.</i>
Theory of Parallels, by M. Ryan	<i>The Author.</i>
Journal of Chemical Society, sec. 2, vol. 4	<i>The Society.</i>

Title.	Donor.
Monthly Notices of the Royal Astronomical Society, vol. 26, no. 4	<i>The Society.</i>
Proceedings of the Royal Society, vol. 15, no. 81	<i>The Society.</i>
Proceedings of the Royal Geographical Society, vol. 10, no. 2	<i>The Society.</i>
Proceedings of the Meteorological Society, vol. 3, no. 22	<i>The Society.</i>
Journal of Society of Arts, vol. 14, Nos. 692-3	<i>The Society.</i>

MARCH 19th.

Transactions of the Chymists Association, 1864-5	<i>The Association.</i>
Journal of the Chemical Society, series 2, vol 4 .	<i>The Society.</i>
Quarterly Journal of the Geological Society, vol. 22, no. 85	<i>The Society.</i>
List of the Geological Society, 1865 . .	<i>The Society.</i>
Journal of the Society of Arts, vol. 14, nos. 694-5	<i>The Society.</i>
Journal of the Liverpool Polytechnic Society, 29th Session, 3rd meeting	<i>The Society.</i>
Official Catalogue, Kingdom of Italy, Dublin International Exhibition, 1865 . .	<i>The Committee.</i>
Universal Resources of Central Italy . .	<i>The Author.</i>

APRIL 2nd.

Journal of the Society of Arts, vol. 14, nos. 696-7	<i>The Society.</i>
Journal of Royal Dublin Society, no. 34, Dec., 1865	<i>The Society.</i>
Schriften der Königlichen Physikalisch-Ökonomischen Gesellschaft yn Königsberg, 2 vols. .	<i>The Society.</i>
On the Origin of certain Christian and other Names, by Dr. Inman, 3 copies	<i>The Author.</i>
Natural History Transactions of Northumberland and Durham	<i>The Society.</i>

APRIL 16th.

Toronto Newspaper	<i>Dr. Hume.</i>
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Title.	Donor.
Journal of the Chemical Society, series 2, vol. 4	<i>The Society.</i>
Proceedings of the Meteorological Society, vol. 3, no. 23	<i>The Society.</i>
Journal of the Statistical Society, vol. 29, part 1	<i>The Society.</i>
Proceedings of the Royal Society, vol. 15, no. 82	<i>The Society.</i>
Canadian Journal of Industry, Science, and Art, no. 61	<i>Canadian Institute.</i>
Monthly Notices of the Royal Astronomical Society, vol. 26, no. 5	<i>The Society.</i>
Geological and Natural History Repertory, no. 10	<i>The Society.</i>
Journal of the Bombay Branch of the Royal Asiatic Society, no. 22, vol. 7	<i>The Society.</i>
Journal of Liverpool Polytechnic Society, 29th session, 3rd meeting	<i>The Society.</i>
Journal of the Society of Arts, vol. 14, nos. 698-9	<i>The Society.</i>
On taking Cold a Cause of Disease, by Dr. Hayward	<i>The Author.</i>

APRIL 30th.

Report of the Proceedings of the London Indian Society, from Dec. 19, 1855, to Jan. 19, 1866	<i>The Society.</i>
Journal of the Society of Arts, Nos. 700 and 701, vol. xiv.	<i>The Society.</i>
Amtlicher Bericht über die Neun und Dreissigste Versammlung Deutcher Naturforscher und Aerzte, in Giessen, im Sept., 1864	<i>The Society.</i>

PROCEEDINGS
OF THE
LIVERPOOL
LITERARY AND PHILOSOPHICAL SOCIETY.

ANNUAL MEETING.—FIFTY-FIFTH SESSION.

ROYAL INSTITUTION, October 2nd, 1865.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The President congratulated the Society upon commencing their Fifty-fifth Session, and expressed a hope that it might be as well attended and as productive as the preceding one. He then called upon the Honorary Secretary, who read the following

REPORT.

The general steady progress of the Literary and Philosophical Society has continued unimpeded during the past session, and in most, if not in all, respects there has been an advance upon previous years. The attendance at the meetings has been very full, and has increased in a manner which proves the growing interest taken in its proceedings by a large number of members; while the discussions which have followed the reading of papers and communications have not fallen short in animation of those which characterised the preceding sessions.

Twenty-eight new members have been elected into the society during the past year—a number which not only keeps up the list by supplying the loss from our ranks by resignation, removal, or death, but also leaves a balance in favour of the permanent increase of our numbers. At the end of last session the numbers stood thus:—Ordinary members 189 (of whom 27 were life members); honorary members, 36; and associates, 7. Of these we have lost by resignation 10, by removal 7, and by death 3, two of whom were life members; so that our present effective strength is 197 ordinary members (of whom 25 are life members). Two honorary members and five associates have been added to our list, increasing them respectively to 38 and 12, and making a grand total of 247 members of all classes.

The accounts, which will be laid before you by your Treasurer, are of a very satisfactory character. The increase in our numbers is accompanied by a corresponding increase in our funds; and our yearly income is amply sufficient to carry on the current expenses of the Society, although these may include some extraordinary disbursements; while our reserve fund has reached £250, which has been invested in dock bonds. Moreover, the subscriptions have been well gathered in, leaving fewer arrears than usual. The expenses of the past year include several extra payments, which your Council have considered themselves justified in incurring in the present prosperous state of the Society's finances, such as the setting up of bookcases, and the preparation and printing of a catalogue of the Society's volumes.

The two life members of whom death has deprived us since the last annual meeting deserve some remark, inasmuch as both had been at one time active members, and held responsible offices in the society, viz., Mr. E. Heath and Dr. Dickinson. Mr. Heath was a native of Durham, and removed to Liverpool in the year 1834, where he became a successful

merchant in the New Orleans trade. He was a liberal supporter of the local charitable institutions, and especially of the Industrial Ragged Schools, formerly in Soho Street, and now in Everton. In 1855 he was President of the Chamber of Commerce, and became also a magistrate of the borough. He joined the Literary and Philosophical Society in 1842, and in 1849 he was elected treasurer, which office he filled until 1853, but failing health had for some time past rendered him incapable of attending the meetings. He died December 3, 1864.

Dr. Dickinson came of an old Cumberland family, and was born at Lampleigh, near Whitehaven. He graduated at Trinity College, Dublin, as M.D. in 1843, and became a very successful practitioner of physic in Liverpool. He was formerly physician to the Liverpool Dispensaries, and afterwards to the Royal Infirmary. Combining with his medical attainments a strong taste for natural history, he was elected a Fellow of the Linnæan Society in 1839, and on commencing his career in Liverpool he was appointed lecturer on botany at the Medical School, a post which he occupied for some years, afterwards exchanging it for medical jurisprudence, and ultimately for the chair of medicine. About the time of the meeting of the British Association in Liverpool, in 1854, he was elected a Fellow of the Royal Society, and he was also a member of the Royal Irish Academy; and in 1859 the Royal College of Physicians added him to their list of Fellows. He became a member of the Literary and Philosophical Society in 1840, and in 1852 he was raised to the presidential chair, which he filled three years. Of late years, failing health obliged him to relinquish some of the more active duties of his profession, and in 1857 he spent the winter in Egypt, with a view to re-establish his health. In this he only partially succeeded, but unfortunately lost his wife on the journey. In 1859

he resigned his post of physician to the Royal Infirmary, and was appointed consulting physician, and although for a time he resumed practice, he ultimately succumbed, and died at Waterloo in July last. Dr. Dickinson accumulated a very valuable library of works on natural history, more particularly on botany, which he was always ready to place at the disposal of students; and his urbanity and kindness of disposition will long be remembered by many who had occasion to avail themselves of his liberality. He read several papers before the Society, but his chief undertaking was an edition of the "Flora of Liverpool," upon the basis of Hall's Flora, which was published by the Literary and Philosophical Society as an appendix to the volume of Proceedings for the year 1850-51 (No. 6).

An experiment has been tried of late, of holding fortnightly social meetings, alternately with the regular meetings of the Society, at the houses of various members of the Society who were willing to receive the members generally. On such occasions a general invitation has been issued from the chair, and it was distinctly understood, by the gentlemen at whose houses the receptions were to take place, that their hospitality was to be of a simple and inexpensive kind, in order that others might not be deterred from following their example. The result of this experiment was, that several very interesting and agreeable evenings were passed by those members who availed themselves of the invitation, whose numbers were, however, rather limited. It is considered, however, that sufficient encouragement has been given to the trial to warrant its continuance, and it is hoped that during the coming session members will be found both to give and accept similar invitations, by which means the Society may become more thoroughly united as a body, by adding the advantages of social intercourse to those already enjoyed by it.

The Annual Dinner of the Society was held at Childwall Abbey, on the 25th of May. The number of members present fell short of that of previous years—a circumstance which may be partly attributed to carelessness in the proper delivery of the circulars announcing the meeting. The members present, however, did not fail to make the gathering an agreeable one.

The disastrous fire which recently occurred at the printing establishment of Mr. Marples entirely destroyed the stock of the Proceedings for the past Session, which were far advanced towards completion. It is fortunate, however, that a complete copy of the volume, as far as printed, is in the hands of the Secretary, so that the labours of the Session will not be irretrievably lost. These sheets have been again placed in the hands of Mr. Marples, and some delay in their final publication will, it is hoped, be the only inconvenience which the Society will suffer from the fire in question. The Council would take this opportunity of expressing their sympathy with Mr. Marples, as a member of the Society, for the great loss and inconvenience he has suffered in consequence of this unfortunate event.

The volume for this Session would hardly have reached the average size had not the valuable Paper of Dr. Ginsburg, on the Kabbalah, been transferred to it from the previous year. That Paper should have appeared in the volume issued during the recess, but the great labour of its production would not allow of its being sooner finished. It was thought desirable that this volume should not be longer delayed, but that the Paper should be appended to the succeeding one. Hence the last volume was somewhat small, while that for the past Session will be larger than usual. Fortunately, the Paper in question, which is now completed, escaped the fire from the circumstance of its not having been transferred to Mr. Marples's office.

In concluding this Report, the Council would urge upon the members of the Society the necessity of individual as well as of united exertion. The Papers during the last Session were not so numerous as might have been desired, and it is thought that this was partially owing to the belief that Papers were already too numerous. This, however, is an error, and the Secretary would be able to effect arrangements for many more Papers if they were forthcoming, provided he had sufficient notice of them. Communications, however brief, will be welcomed; but members reading such Papers or making such communications will greatly facilitate the business of the Secretary by giving him timely notice of the subject, and the most convenient evening for bringing them forward.

In accordance with Law 36, you will be called upon to elect five gentlemen upon the Council who were not upon that of the preceding year, and the retiring Council recommend that the following be selected, viz.—Francis Archer, Jun., B.A. Cantab., Robert D. Holt, Albert J. Mott, James Birchall, Thomas Balman, M.D.

(Signed)

J. A. PICTON, President.

CUTHBERT COLLINGWOOD, Hon. Sec.

It was moved by Dr. GINSBURG, seconded by the Rev. JOSHUA JONES, and resolved, "That the Report now read be adopted."

The Treasurer then presented his Balance-sheet, which exhibited a reserve of £ 50, and a balance of £21 of receipts over the expenditure of the past year.

It was moved by Mr. W. H. WEIGHTMAN, seconded by Mr. F. ARCHER, Jun., and resolved, "That the accounts now presented, and audited by Messrs. Unwin and Jones, be passed."

The Society next proceeded to ballot for a new Council and Officers, and first for five new members of Council to replace five who retire annually, when the following were elected :—Mr. F. Archer, jun., B.A., Mr. R. D. Holt, Mr. A. J. Mott, Mr. James Birchall, and Dr. Balman. Next, for nine other members of Council, namely—Dr. Ginsburg, Dr. Nevins, Dr. Edwards, Mr. Byerley, Dr. Collingwood, Rev. H. H. Higgins, Rev. Joshua Jones, Mr. A. Higginson, and Rev. W. Banister. Of these, the Rev. Dr. Ginsburg, Dr. Nevins, and Dr. Edwards were elected Vice-Presidents ; Mr. Byerley, Treasurer ; and Dr. Collingwood, Honorary Secretary.

Mr. Robinson Kendal was balloted for, and duly elected an ordinary member of the Society.

The Associates of the Society were re-elected, upon the recommendation of the Council.

A large number of donations were laid upon the table, and thanks voted to the donors.

It was decided, after some discussion, that, the Society having declined to vote any money from its funds to the Gallery of Inventions and Science, it could not continue to send delegates to that institution.

Dr. Collingwood exhibited and explained a very complete set of portions of the Atlantic Cable, mounted as a trophy, and the property of Captain Anderson, of the Great Eastern, which may be seen at the Free Public Library.

Some discussion arose as to the probability of success in the attempt which will be made to raise the broken end of the cable next summer.

The Society then adjourned.

FIRST ORDINARY MEETING.

ROYAL INSTITUTION, October 16th, 1865.

J. A. PICTON, ESQ., PRESIDENT, in the Chair.

The minutes of the last meeting were read and signed.

The resignations were received and accepted of the following ordinary members:—

Messrs. John Andrew, E. Harvey, J. J. Stitt, John Weightman, W. H. Grimmer, Rev. N. Loraine, Rev. H. J. Hindley, and Dr. Scholfield.

Mr. KIRKBY described the appearance presented by Faye's comet, which he had lately observed.

Dr. NEVINS exhibited a chemical novelty which has lately appeared in Paris, and has excited considerable interest there, called by the fanciful name of "Pharaoh's Serpents." They consist of a small cone, about the size of an ordinary aromatic pastile, and are made by folding tinfoil into a cone, and filling it with sulpho-cyanide of mercury. When a burning taper is applied to the apex of the cone the tinfoil melts, and the powder slowly takes fire, and burns at the rate of a common pastile. But instead of being dissipated in a thin, almost invisible vapour, the fumes which arise from it assume a solid form of extreme lightness, which is very small at first as it issues from the point of the cone, and gradually increases in diameter as the cone burns down, until at last it possesses the thickness of a person's finger. As the solid fume escapes it twists and coils in various directions, as it is forced through the apex of the tinfoil covering, and

produces at length a solid body, eighteen inches or two feet in length, of a yellow colour externally, with a tapering end like the tail of a serpent, and a thicker body and head, and coiled so as closely to resemble this animal in appearance. The chemical changes that take place are somewhat complicated. The mercury is separated by the heat, and is dissipated in vapour, whilst the sulphur takes fire and burns with its ordinary pale blue flame, producing its characteristic unpleasant odour. The cyanogen, which is the remaining ingredient, is entirely decomposed, and is converted into a compound of carbon and nitrogen ($C_{18} N_{18}$), of the name of mellon, or mellone. This is solid, and extremely light, and constitutes the essential bulk of the serpent, but at the same time that it is formed from the cyanogen some surplus carbon is also set free. This mechanically mixes with the mellone, and imparts a black colour to what would otherwise be a dull yellow. The body of the serpent is therefore black, but the apparent skin is yellow, and this external colour is derived from the burning tinfoil. The heat of the combustion causes the thin tin to burn, and form yellow oxide of tin, better known as polishing putty, and as the mercurial compound and the tin covering happen to burn at the same rate, the black smoke of mellone and carbon is covered by a thin layer of yellow oxide of tin as fast as it is formed, and the result is the curious phenomenon described. It is said that a child of noble birth lately swallowed one of the cones on the supposition of its being a *bon-bon*, and the paternal Government of France has it, therefore, under consideration, whether to allow these curiosities still to be made, as the compound employed is a poisonous one.

Mr. HIGGINSON drew the attention of the Society to an extract from the *Scientific Review*, on the "Ventilation of Sewers," stating that a French chemist proposed to derive

from the sewers a supply of air to the furnaces of factories, thus destroying their noxious gases by combustion and supplying fresh air to the sewers; with the assertion that the plan was in use already on a small scale. Mr. Higginson was much pleased to hear such an announcement, as he had himself, many years ago, urged the very same thing before this Society, and again, in 1858, before the Social Science Association, at their meeting in Liverpool. The arguments used by him on those occasions were to the effect that, in a tidal town especially, there must be a great escape of air from the sewers, for the influx of the tide acting like a piston forced up the sewers twice a day, expelling bad air into the streets and houses wherever openings were not trapped, and thus spreading seeds of disease. Mr. Higginson believed that the moist air from the sewers would even be of benefit to the furnace fires, and that, in such towns as Liverpool, Dublin, Swansea, London, &c., where the sewer nuisance was an acknowledged fact, an advantage might be gained to the health of the community by some such plan. At the present time, when water-closets are being forced more and more into use, no mere flushing of the sewers can keep their atmosphere pure, or prevent its escape into the streets and houses, to the detriment of the susceptible. Mr. Higginson argued that the main sewers along the line of the docks should be connected with the furnaces, and that a very moderate amount of constant action would be sufficient to effect the object.

A Paper was then read by Mr. J. McFARLANE GRAY, "On the Geometry of Wyllie and Gray's Patent Valve Motions." Mr. Gray began with the valve motion of his patent steam riveter. This he explained by drawings, and by exhibiting one of these machines. The working of this valve illustrates in a remarkable manner the high velocity of steam. The inlet to the piston of the slide valve is open for only the

three-hundredth part of a second, yet that infinitesimal portion of time is sufficient for the admission of sufficient steam to move the valve. Having the machine before the meeting, he took the opportunity of explaining the other parts of the apparatus, and pointed out the mathematical features, in the relations between time, velocity, and space, in the motions of the hammer piston of the machine. He then described the valve motions of oscillating engines as generally constructed, and introduced a new form of valve motion for oscillating engines, for reversing and for working expansively. The principle of its action was explained by geometrical diagrams. The communication also included a new expansion link, and a new arrangement of toothed gearing for valve motions.

A brief discussion followed the reading of this Paper, after which the Society adjourned.

SECOND ORDINARY MEETING.

ROYAL INSTITUTION, October 30th, 1865.

The Rev. H. H. HIGGINS, VICE-PRESIDENT,
in the Chair.

The minutes of the last meeting were read and signed.

The Rev. H. H. HIGGINS drew attention to the exceptional character of the past season, and suggested the advantage of putting on record any peculiar features in the appearance of animals and plants which may have been noticed by members.

Mr. J. McFARLANE GRAY described the mode of compressing peat, which he had witnessed in Ireland.

Dr. TURNBULL exhibited some specimens of a phosphoretic mineral, lately found in North Wales, in the lower Silurian strata, and which was found useful in the manufacture of artificial manures.

A paper was then read

ON ASSOCIATED ANIMALS,

BY DR. COLLINGWOOD, Honorary Secretary.

This paper was copiously illustrated with specimens and figures, and at its conclusion a short discussion thereon took place, after which the Society adjourned.

THIRD ORDINARY MEETING.

ROYAL INSTITUTION, November 13th, 1865.

The Rev. C. D. GINSBURG, LL.D., VICE-PRESIDENT,
in the Chair.

Mr. Edward Samuelson and Dr. Hayward were balloted for, and duly elected ordinary members.

Captain Walker, of the ship "Trenton," was recommended by the Council for election as an Associate.

The resignation of Mr. H. Fischer was received and accepted.

Mr. T. J. MOORE exhibited a number of marine specimens recently added to the Derby Museum; a collection of marine specimens from the China seas, Banka Straits, &c., made by Captain Berry, ship "Richard Cobden," Associate of the Society, who was present at

the meeting. Among them were examples of four species of comatula, three species of sea-snakes, a very fine scabbard fish (*Gempylus?*), and several other rare and interesting forms. Also, young living specimens of a leathery turtle (*Platypeltis Ferox*), and of two species of terrapins (*Emys Picta* and *Guttata*), presented by the son of Professor Hall, of New York; and a fine specimen of a bony gar-pike (*Lepidosteus*), presented by Mr. J. O. W. Fabert.

The Rev. H. H. HIGGINS said that much uneasiness was felt in Manchester, under the apprehension that the export trade to India of manufactured Cotton goods was likely to be seriously diminished through the liability of the goods to be damaged by mildew. It was stated in the papers that "certain descriptions of Cotton goods sent to India are adulterated to the extent of about 25 per cent., careful analysis showing about $66\frac{1}{2}$ per cent. of Cotton, 13 of mineral matter, 14 of flour, and $6\frac{1}{2}$ of water, while a good article should contain at least 90 per cent. of Cotton." Now, from information received in Manchester, Mr. Higgins was disposed to think this was not an accurate account of the matter. The adulteration of Cotton goods with size, made chiefly of flour, and with a mineral substance called China clay, had been a very general practice for many years, but the specific charge of liability to become worthless through mildew was, he thought, comparatively recent, and was the result of a further adulteration with salt. Cotton stiffened with size and China clay had a harsh feel, which at once betrayed the adulteration. In order to obviate this, salt was added to preserve a certain degree of moisture in the Cotton goods, which, when thus treated, though extensively adulterated, felt as supple and as mellow as if they were made entirely of Cotton. The consequence of the moisture might have been easily foreseen—a crop of fungi sprung up, the rooting fibres (*mycelium*) of which utterly

destroyed the texture. So that, as it appeared, the original adulteration did not produce the evil, but a further adulteration, added to conceal the first. Mr. Higgins had been asked to propose a remedy, and suggested as the simplest the freer use of Cotton in the manufacture of calicoes and similar fabrics; but as he did not understand the exigencies of the case, he would suggest that, if flour size had to be used, the size should be made from flour of the best quality: it was almost certain that inferior flour would be found to be full of the germs of fungi. In the present instance the size, no doubt, supplied the spores of the mildew, and the salt induced the dampness favourable to their germination.

Some remarks were made by other gentlemen, who imagined that the salt alone might have produced the mildew, inasmuch as it did not appear until the salt was added; but Mr. Higgins assured them that this was a most erroneous conclusion, although the salt, no doubt, offered the conditions for the germination of the spores already present.

Mr. TURNER exhibited, in the last number of Gould's *Birds of Asia*, the beautiful drawing of the Zic-Zac (*Pluvianus Ægypticus*), described by him as the bird associated with the crocodile, as exhibited by Dr. Collingwood in connexion with his paper read at their last meeting. He, however, threw discredit upon the reported association.

The following paper was then read.

ON THE OLD ENGLISH BOROUGH AND ITS INHABITANTS.

By JAMES BIRCHALL,

Late Government Lecturer on History, Training College, York.

IN a paper which I had the privilege of reading before the members of this society during the session of 1864-65, I attempted to give some account of the Feudal Peasantry in England, more particularly of the relations which subsisted between them and their lords, and the circumstances which contributed to their subsequent emancipation. This essay is intended to be a sequel to that paper, and it will be my purpose to sketch the characteristic features which marked the condition of the feudal vassals in the towns. I propose, therefore, to trace the origin and early history of an English Borough and its political immunities; to examine the qualifications by which its inhabitants, in their capacity as burgesses, were distinguished from the rural population; and thence to show how charters of incorporation had their origin. Lastly, as the trades' guilds exercised so powerful an influence in every large borough, and formed, at length, an essential part of its internal organisation, I shall briefly review the source and character of these institutions, giving occasional portraits, from contemporary writers, of the most important members of such fraternities, and conclude with a picture of their method of transacting business.

The early history of cities and boroughs, and of the condition of their inhabitants, not only in England, but on the continent generally, is lost in the gloom of ages; but there is little doubt that the greater part of them had their origin

in the time of the Romans, and that they successively passed into the hands of those nations who from time to time established themselves in the various provinces of the Roman Empire. In France, where the peculiar constitution of the borough and its corporate character were developed earlier than in England, there would seem to be sufficient proof that the Roman system of decurions, or communities of free citizens, was the real source of the borough. These communities had the right to elect members to a common council, which was their governing body, and they existed in great numbers in the province of Aquitaine. In other parts of Gaul, those especially which lay contiguous to Germany and the Rhine, or were subjected by the Franks, these Roman communities were considerably modified by an admixture of principles and customs derived from the German system of voluntary societies or guilds; while, in the Rhenish provinces and the Netherlands, it is more than probable that the privileges of citizenship were derived exclusively from the latter source.

Legal antiquaries do not allow of this Roman original of the borough in England; though there is no reason to suppose that the process of change from Roman to Teuton was not the same throughout the whole extent of the Empire. Certainly we have not such detailed and precise accounts of the early history of the borough as exist in France, but we have, nevertheless, many proofs, in the Roman inscriptions which frequently come to light, that our existing municipal customs were undoubtedly in practice among the Romans, and we cannot but infer that our Saxon ancestors derived them from that source. From these inscriptions we learn that the government of all the civitates in Roman Britain was republican in form, that their constitution was free, and their officers were exempt from the control of Imperial officials. The municipality consisted of two classes—the

plebs or inhabitants at large, and the *curia* or elective body. The members of this body called *curiales decuriones*, or *senators*, inherited their rank, or in some cases were elected to it—they alone appointed the *duumvir* or chief magistrate, who was chosen annually; and the *principales* who formed the permanent council of the *curia*, and continued in office for fifteen years. To protect themselves against the injustice or tyranny of this governing body, the *plebs* chose the *defensor civitatis*; whose office was similar to that of the Tribune in Rome; and for the same purpose the colleges or guilds of trades elected certain of the senators as their patrons. It is impossible not to recognise in these constitutions of the municipium a distinct resemblance to the customs of the Borough. In the *curia* we perceive the origin of the elective body; the *probi homines* or *boni homines* of the older Saxon records, and the *burgesses* of the medieval borough; the *duumvir* is the *prefect* or *reeve*; and the *principales* are the *aldermen*.

This view of the Roman original of the Borough is further confirmed by the fact that the Municipium was at first a military foundation, whose citizens were veteran soldiers, bound by the privileges they enjoyed to defend their town, and the territory depending upon it, from the attacks of the barbarians, or the revolt of the conquered nation. In the later Roman times, the stronghold thus occupied and defended by its citizen soldiers was called in the Latin “*burgus*”; and the Anglo-Saxon Burgh was in reality nothing more than a hundred, or an assemblage of hundreds, surrounded by a moat, a stockade, or a wall. It was simply an inhabited locality, which had either formerly been occupied by the Romans as one of their Municipia, or had presented peculiar advantages for defence, and which the Saxons having founded, had been invested by them with the forms of the Roman model. For, as Professor Pearson

observes, in his "*Early and Middle Ages*," (ch. vi.) Roman municipal institutions, laws, and mercantile guilds were all transmitted to us, with more or less change, through the stormy Saxon times; Roman local names were preserved by the Saxon conquerors as they found them, and Roman laws formed the basis of the Saxon family system. Another fact which still further corroborates this hypothesis is that our oldest municipal constitutions are found in those towns which actually enjoyed them as Roman *Municipia*. The Saxons, like the other barbarous nations who established themselves in the provinces of the Empire, made it their chief business to seize the lands, while they left the cities in the hands of the old citizens, because they were indisposed to occupy these from a superstition which led them to believe that houses built by other nations were under the influence of charms and magic. The Roman cities being thus left undisturbed for the most part, we are able to account for the importance and independence which the Boroughs possessed at this very early period. Canterbury we find as early as the year 805 governed by a *prefect* or *reeve*, who is of sufficient wealth and influence as to be able to give lands to the monks; and in the charter confirming this grant, there is a remarkable distinction made between the *villa* or town, and the *civitas* or *municipal body*, such as we might expect in the transmission of the Roman principle to the Saxon people. Rochester, again, derived its Saxon name of Hrofecester from one of its early reeves, named Hrof. The municipal body of Dover also early attained to an important position, which is seen in the account of the quarrel that Eustace, count of Boulogne, the brother-in-law of Edward the Confessor, had with its burgesses, when they resisted his entering their town at the head of an armed force. In 1040 the citizens of Worcester openly defied King Hardicanute to impose a tax on them;

and when he sent his *huscarles* or household soldiers to enforce payment, the inhabitants rose against them and slew them, and thus boldly asserted their right to exemption from extraordinary taxation. When the Danes made their predatory excursions, the towns most conspicuous for making the bravest defences were those in which the old Roman municipalities had longest survived. Such were Exeter, Gloucester, Rochester, Leicester, Bedford, Maldon, York, all of which we find acting as free and independent cities; and if we turn to the records of the city of London, we shall find abundant proof of the view now advocated concerning the Roman original of the old English Borough.

Most of the towns built by the Saxons, and also all the Roman towns, were royal boroughs, owning no superior lord except the king. But after the conversion of the Saxons to Christianity, other towns gradually arose, chiefly in the vicinity of episcopal sees and abbeys, and they eventually received their municipal privileges at the hands of their ecclesiastical protectors. St. Albans, Dunstable, Beverley were among such towns, some of which were built at the instance of the bishops or abbots, and others given to these ecclesiastical dignitaries by the piously disposed Saxon kings, according to a fashion which then prevailed both in England and France. It is from this circumstance that we find so many medieval boroughs holding their charters from ecclesiastical, and not from lay lords. The privileges of these ecclesiastical boroughs were exactly the same as those of royal burghs, for all boroughs were essentially alike, and we find the burgesses therein claiming exemption from extraordinary taxation equally with those who dwelt on the royal domains. Thus when the Danish king Swegen, then at Gainsborough, demanded a tax from the burgesses of Bury St. Edmunds, they pleaded their immunity from royal taxes; and the monks of St. Edmunds who were their

superior lords took their part, because the taxes of the burgesses belonged to them.

These assertions of independence on the part of the Anglo-Saxon boroughs have been variously interpreted by different writers. Hume, who was ignorant of them, and obsequiously adopted the views of Dr. Brady, whom Charles II. and his brother employed to write down the privileges of the burgesses, contemptuously places the municipal towns in the lowest state of degradation; Merewether, in his *History of Corporations*, zealous for them as his clients, finds them in the complete enjoyment of every privilege from the very earliest periods; Palgrave, as heavily weighted with legal bias, is not far behind in his too favourable estimation of them; while Hallam, the most calm and unprejudiced of constitutional or historical writers, takes a more moderate view, and considers the burgesses in the Saxon period not to have been so exclusively in the possession of privileges as the above two writers would suppose. From these conflicting opinions, I have ventured to draw such conclusions as here follow.

Whatever was the actual nature of the internal government of the borough, and of the immunities of its burgesses, it was sufficient to distinguish them from the ceorls or rustic population, though it did not make them free according to our estimation. Equally with the "landwardmen" the burgesses lived under the protection of the lord in whose township or manor they were situated, although in many instances it so happened that a burgess owed suit in the court of the borough wherein he resided, while he paid his customs or rents to another lord, whose manor did not comprise his borough. This will be frequently illustrated in the course of the paper. The lord held the town in his demesne, and was the legal proprietor of the soil and the tenements.

The burgesses, on the other hand, were not destitute of a certain estate in their possessions, perhaps being in a condition corresponding to that of the copyholders in the later Plantagenet period. In frequent instances they could transmit their tenements to their heirs, or even alienate them to a stranger. Such burgesses as had this special privilege of inheritance were men of considerable wealth and influence, holding over their own property in the borough the enviable jurisdiction of *sac* and *soc*, and transmitting it to their heirs, or to the persons who purchased their possessions. These burgesses were probably aldermen; and in Stamford and Lincoln, two of the most important of the Danish boroughs, there were, in Edward the Confessor's reign, twelve such men in each. They were the *lagemen* or jurymen of the borough—the *chief pledges*—and, at the time of the compilation of Domesday Book, two of the Lincoln burgesses were still alive and in possession; of five, the sons were in possession; and the rights of the remaining five were held by five persons, who were either the heirs or the purchasers of the property. We find the same peculiar privileges existing in London, where both secular and ecclesiastical landholders possessed their exclusive sokes, or jurisdictions: the prior of the Holy Trinity, for instance, ranking as alderman of the ward of Portsoken, and holding a regular wardmote; and parts of the ward of Farringdon being held as a territorial franchise, in a similar manner, by a family of that name, even so late as the thirteenth century.

These exclusive sokes, the fruits of that inveterate passion for independent action and self-government which the Saxons cherished till it degenerated into a political vice, only very gradually gave way to the power of the citizens; there being nearly thirty of them in the reign of Henry III., and upwards of twenty in the reign of his son.

In other instances the burgesses possessed common property, belonging to a sort of guild or corporation ; and in other boroughs, again, they had a municipal administration by magistrates of their own choice. Among other advantages also, denied to their equals in the country, they possessed the benefit of a market for the sale of their wares and merchandise ; they had their hall or Hanse-house (*hus-thing*) in which they met and deliberated ; they exercised the power of enacting By or Borough laws, for the government and improvement of the borough ; and they possessed, by lease or purchase, houses, pasture and forest lands, for the common use and benefit of the whole body politic. In return for these peculiar favours, the burgesses paid to the lord an annual rent, each of them individually, and certain determinate dues and customs :—

Pontage, for crossing the bridge he had built ;

Passage, for the protection he afforded their traders while passing through his manor ;

Stallage, for the right to erect a booth or stall in the market ; and

Lastage, for every load and cargo.

But as the soil was his and the burgesses were his vassals, the lord did not limit his demands to these rents and dues—he exacted *tallages* from the townsmen as often as he could ; not from the whole body collectively, but from each man individually. In the Saxon times the king received his *rates* by his receiver, called in Domesday Book the *præpositus regis*, from each particular person from whom they were due, individually, and in each individual case. In these royal boroughs the numbers of burgesses paying rates are enumerated, and the *præpositus regis*, or king's reeve, is frequently mentioned, as at Dover, Lewes, Guildford. In very many boroughs the burgesses had endeavoured to emancipate themselves from the extortion of the king's

collecting officer, who was not under their own jurisdiction, by compounding for the king's taxes by the yearly payment of a certain sum of money. Such was the case with Dorchester, Bridport, Wareham, Shaftesbury, Hertford, and other places. The men of Dover had thus agreed to furnish the king yearly with 20 ships, manned with 21 sailors each, during 15 days, in return for the privilege of exercising over themselves the jurisdiction of *sac* and *soc*. The men of Oxford paid £20 a year and a certain quantity of honey in lieu of all customs; the citizens of Worcester had bought up every burden except the land rent; the burgesses of Cambridge lent the sheriff their ploughs, and the men of Warwick paid in honey and corn. Hereford was a city on the royal domain, and there the king had his own mint and coiners; no smith was allowed to make his nails of any other iron than that which came from the royal mines in Dean Forest; and the goodwife could not brew her ale without paying tenpence to the king for a license. Chester was a royal port, and was subject to very stringent regulations with regard to the shipping which traded with it. Sometimes, however, boroughs were excused from these payments; for we read in the Pipe Rolls of the reign of Stephen that Hertford, Tamworth, Dorchester, and also individual burgesses in other boroughs, were freed from payment on account of poverty; and Durham was forgiven one half its customs, because of the partial destruction of the city by fire.

This conversion of the individual tributes of the burgesses into a yearly or perpetual rent for the whole borough was a very necessary safeguard, especially for the smaller towns, because the king generally let these out to farm to some one who paid him a certain sum, and made as much out of it as he could—a transaction which subjected the burgesses to every kind of oppression, and yet placed them beyond the

protection of their lord. This device was more generally adopted by the early Norman kings than by their Saxon predecessors, and it was continued until the reign of Henry II., when the towns obtained charters, and purchased the farm of the king's dues for ever. The burgesses were then regarded as holding their land and houses by *Burgage Tenure*, a species of *Free Socage*; and the borough was said to be *affirmed*, or *let in Fee Farm*, to the burgesses and their heirs for ever. The lord thus divested himself of his right of property in the town and its inhabitants; he retained no more than his lordship over them, and the inheritance of the annual rent, which he might recover by distress. The charters which the burgesses purchased confirmed to them no more than their old rights and privileges, which their Saxon forefathers had enjoyed; they granted to them nothing new, but constituted a powerful protection in law against the numerous vexations and infringements of their privileges which they had been forced to endure from the Conquest to that time. They furthermore enabled them to recover many of the other privileges, which the more important boroughs had possessed in the happier days preceding the Norman subjection. The burgesses after this recovered their ancient exemption from tolls on rivers and in markets; they obtained many commercial franchises; they were released from the duty of appearing in the lord's Court Leet once a year as his vassals; the lord gave up his right of appointing a constable or bailiff over them, and the Borough finally assumed all those special legal characteristics which distinguished its burgesses from the rest of the Feudal vassals. The most important, however, of all the advantages which thus accrued to the boroughs, in consequence of their being let in fee farm to the burgesses, was that which ultimately gave them the right to be represented in the national legislature. The substitution of an annual sum,

assessed upon the burgesses by their own magistrates, for a capitation tax levied by the king's officers and estimated at the royal discretion, was really a grant of the right of self-taxation. There is no doubt that the sovereigns found this expedient more profitable for their exchequers, as otherwise they would not have continued it, and allowed it to become established by usage. It being also found more convenient to assemble the deputies of the boroughs and consult with them about a common assessment for all, than to entrust the privilege to the discordant judgment of so many separate communities, the grand custom was begun of calling upon the burgesses to send representatives to parliament, to agree with the king concerning the amount of the subsidies they were prepared to give. Notably this privilege was first called into existence by the memorable act of Simon de Montfort; but it had previously been exercised at irregular intervals by those towns and boroughs which were of greatest value to the Crown, and therefore which made the most rapid progress towards complete emancipation—municipal and constitutional. What qualifications entitled the inhabitant of a borough, in his capacity of burgess, to the parliamentary electoral franchise thus conceded, will be presently examined, as, having thus far reviewed the progress of the borough in its external relations, I shall now proceed to the consideration of its internal government, and municipal organisation.

The German *bürg* and the Dutch *borg* signify a pledge or bail, from which the word borough means that assemblage of inhabitants in one vill, tything, or collection of tythings, mutually responsible at the same court for each other's good conduct. The whole scheme of Saxon law, as is well known, was based upon the pledge or surety; every man, whether bond or free, whether a native or mere sojourner, being

placed under this guarantee—freemen for themselves and for each other; the host for his guest; the lord for his villeins. For this purpose, every man was compelled to locate and enrol himself in that political division wherein he was born—the upland freemen in the hundred or shire, and the burgesses in the borough. Within these respective divisions every inhabitant, according to his situation and privileges, was bound to make himself known to his fellow-countrymen, by appearing at the court of the presiding officer of his district, and there presenting his pledge, undertaking such municipal duties as devolved upon him, and rendering that suit and service to his lord or superior which his circumstances demanded. Until these duties were fulfilled, no freeman was accounted *law-worthy*, and the neglect of them after the age of twelve years was punishable by a fine.

The inhabitants of the borough, being cut off from the shire and exempted by prescriptive usage from the sheriff's jurisdiction, were governed by a magistrate, variously styled, in the old Saxon charters, *wic-reeve*, *port-reeve*, and *borough-reeve*, *bors-holder*, or *borough's-elder*; and in the Norman times, *constable*, *bailiff*, or *mayor*. Whether the reeve owed his situation to the nomination of the lord, or to the choice of the burgesses, is a doubtful question; but that the king had his own *wic-reeve* in his royal boroughs we have numerous examples, some of which I have already cited. It is probable that where this officer existed, the burgesses also had their own magistrate, for the administration of the municipal affairs of the borough. Thus we find in the old laws of Lothere and Eadric, kings of Kent, in the seventh century, the king's *wic-reeve* of Lunden-wic or London, expressly mentioned; we know that the *port-reeve* of London was appointed by the crown; and that the first mayor of the city, Henry Fitzalwyn, was also nominated by the sovereign, in 1188, and continued in office twenty-four years. In the

same year also the first sheriffs were made; but it was not till after the lapse of eleven years that the citizens obtained leave to choose these officers, and not before the charter of 1215 that they were permitted to elect their mayor annually. My own notion is, that the king had his officer in the large boroughs, to watch his interests and collect his dues, for in the early Saxon times these boroughs were almost independent republics, and that the burgesses had their officer; there thus being two reeves, perhaps more, in a borough; the burgesses' reeve being the chief magistrate for municipal affairs, the other reeves having a character not unlike that of our consuls in foreign ports, but invested with the additional power of levying dues upon their master's subjects. Thus in a law of Lothere and Edric, just alluded to, the king's reeve is mentioned. But at that time London was a free trading town, lying neutral between Kent on the one side and Mercia on the other, and the law relates only to Kentish men in London buying chattels in that city. During the period when the country was broken up into several independent kingdoms, an influential borough like London would stand free as an independent state; but as these kingdoms gradually merged, and finally became subject to the sway of one all-conquering ruler, the boroughs would readily fall under him also, and the burgesses' reeve would become absorbed in the king's reeve. Where Palgrave, Turner, and Hallam, however, hesitate to define a theory, I (whose reading when compared with theirs is so limited) feel that every apology is due for even suggesting one. But by whomsoever appointed, the wic-reeve was, from the earliest periods, an officer of great importance in the more populous towns, and was sometimes numbered among the noblest in the land. Both Bede and the Saxon Chronicle record, that when Paulinus, the first Archbishop of York, preached baptism in Lindsey, in the year 627, the first who believed was

“a certain great man called Blecca,” who was the reeve of the city of Lincoln.

The primary duty of the reeve, as the king's officer, was to collect his lord's revenue, consisting chiefly of tolls on sales, manumissions, and judicial executions; which tolls, in the “*Codex Exoniensis*,” are described as being paid to the reeve “for the king's hand.” His next duty was to watch over the king's interests, and to exercise within the limits of the borough the same authority which the sheriff exercised within the shire. In royal burghs, and in the boroughs belonging to earls palatine, this jurisdiction of the reeve comprehended both civil and criminal cases; but in boroughs belonging to other lords, who had only the cognizance of civil suits in their Leet or Court Baron, then the sheriff, as the king's officer, had jurisdiction in all criminal cases. Royal charters, however, when granted, always gave to a borough complete and exclusive jurisdiction; the burgesses then, by their reeve, had the return of all writs, and were, in the language of those times, “quit of suits of shires and hundreds,” and their jurisdiction comprehended *sac* and *soc*, that is, jurisdiction over the whole territory of the lord; *toll*, liberty to buy and sell; *them*, the forfeiture of stolen goods; *infangthef* and *outfangthef*, authority to punish robberies. In his double capacity, therefore, as the lord's magistrate and the guardian of the burgesses, the reeve was bound to preserve the king's peace, and see that watch and ward were duly kept; to prosecute and punish “murder, rapine, and wrong,” and to make those who committed such offences responsible to justice for their conduct. All sales were to be transacted in his presence, and not without the walls or bounds of the borough; and no article could be legally disposed of unless it had first been weighed or measured by him, and had been subjected to toll. Hence, he granted a license to trade to

any hawker or pedlar coming within the borough for only a short time, and if such pedlar came for good, and was a freeman, then it was his duty to enrol him as a burgess—as one of the permanent free inhabitant householders of the borough. If the new comer was a member of any trading guild, that was reckoned as a proof of his freedom, and the fact was investigated and decided by a jury of six men, who were to come from the stranger's "birth-shire." Any foreign-coming man, who was found wandering about, and did not proclaim his ware by "acclamation," was to be taken as a thief, and either slain or redeemed. If any merchant went forth of the borough to pursue his merchandise, and did not make the reeve "a witness of it," as the old phrase went, or inform his neighbours where he was going and when he should return, or if when he returned he did not tell them the purchases he had made, he was punished by the loss of his property.

For the due performance of these regulations, a certain number of burgesses was to be elected as witnesses of every sale or purchase: thirty-three in the larger boroughs and twelve in the smaller ones, each of whom was to take oath that "neither for money, love, nor fear, nor any other cause, would he say anything but the truth." Not less than two of these "sworn men" were to witness every mercantile transaction.

As a necessary consequence of their exemption from the sheriff's interference, and that the borough-reeve might ensure the regular observance of all these laws, every free man in the borough was to take his oath by his pledges, in the Folkmote, Portmote, or Court Leet of the Borough. The *Burghwara* were summoned to this court by the ringing of the "*Mot Bell*," and if any burgess refused to go and render suit and service and give his pledges, and absented himself three times, he was fined for contempt. If he

failed to pay the fine, the elders of the borough were to go and seize all that he had, and take it in lieu of his pledge. The burgesses were bound to attend this court, because, in the words of the laws of Edward the Confessor, it was "there, where the people who are under the protection or in the peace of the king ought to come, and by *their common council* provide for the indemnity of the crown, and for repressing the insolence of wrong-doers to the common good of the kingdom. And that these all ought to come, once in the year, in the Kalends of May, and with their faith and oath unbroken, they should unite themselves together into one body as *sworn brethren*, to defend the king against strangers and enemies; and that they would be faithful to the king and swear their fidelity to him."

The law of the *Free Borough* with regard to this pledge, termed in Yorkshire "ten man tale," was this: Every man was to be under the pledge of the decenna or ten men, so that if one incurred forfeiture the other nine should produce him to do right. If they found him, he was forfeited; if he continued at large, then the Head Freeborough (*Friborges heofod*) was to take two of the most respectable members and the tything-man of each of the three neighbouring decennæ or tythings, together with two of his own tything, and these twelve as *Compurgators* were to clear the tything, if possible, from all participation in the crime and flight of the offender. If they failed in this, then compensation was to be paid out of the goods of the offender, and failing this, from the tything at large. This done, the three tything-men took oath still to bring the offender forth whenever they could, or disclose his retreat when they discovered it.

In the Saxon period the Burghmote was generally held three times a year, and Magna Charta made it incumbent to be held not less than twice in the year. At the Burghmote held in the Kalends of October, the reeve was generally

appointed, and the burgesses also undertook their *lot* for the year; that is, were elected to fulfil such municipal duties as attached to the offices of constable, overseer, churchwarden, juryman or compurgator, or were drafted into the *posse burgi*, or borough police force.

The larger boroughs were divided into districts, answering to hundreds in the shire. These districts were variously named: in London, Cambridge, Stamford, and the generality of the towns, they were called "wards;" in York city they were termed "shires;" and in Huntington they went by the name of "ferlings or quarters." Each ward had its own wardmote or leet, under its elected alderman, and was for certain purposes a distinct jurisdiction; although, as has before been stated, there existed certain exclusive sokes in parts of most large boroughs. Where also a baronial castle was situated within the walls or precincts of the borough, its moat and bastions were a bar to the legal jurisdiction of the burgesses, and their wic-reeve had no authority. In turbulent times this was a source of constant provocation to the burgesses; they were never free from the raids of the garrison, who knew that their booty was secure from seizure, and their persons from legal arrest, when once within the confines of the castle.

What qualifications entitled an inhabitant of the borough to the privileges of burgess-ship, is a question which has been repeatedly discussed in parliament, and in the great law courts of the realm, and has been decided in various ways.

Four different theories have been held on this subject.

1. Under Edward I. the right was vested in the inhabitant householders, resident in the borough, paying *scot and lot*, and probably general taxes. This was laid down by a celebrated decision of a committee of the House of Commons in 1624, and was called the Common Law Right, which

ought always to obtain where prescriptive usage to the contrary cannot be shown.

2. The right sprung from the tenure of certain freehold lands and burgages within the borough, and did not belong to any other tenants.

3. The right was derived from charters of incorporation, and belonged to the community of freemen of the corporate body.

4. Dr. Brady, who wrote his *History of Corporations* to justify the Stuarts, asserted that the right did not extend to the generality of the freemen, but was limited to the governing part, or municipal magistracy—the mayor and aldermen.

Owing to our extended knowledge of the ancient laws and charters, both of the Saxon and Norman times, the doubts which once existed on this point cannot now be entertained, because they are not justified by any reference to these authorities. Of the above four theories, therefore, the last one is utterly untenable; the third one, though now generally accepted, is not based upon historical accuracy; while the truth lies more fully in the first than in the second.

The first distinguishing characteristic of the borough was its exemption from all interference by the sheriff, for which reason many boroughs are entered in *Domesday* distinctly by themselves, before the *terra regis*, and the general return of the county. Those who possessed the privilege of this exclusive jurisdiction were the permanent, free, resident householders of the borough, who paid scot, gable, burgh-boot, and other local rates; bore lot; and who were presented, sworn, and enrolled at their own Leet or Burghmote. Their burgess-ship did not depend on Tenure, as the second theory represents, because many burgesses belonged to other manors, that is, they were the vassals of a lord who was not the owner of the soil of the borough in

which they resided. Its fundamental basis was, their being *resident* householders. In Domesday they are mentioned as distinctly connected with their houses, which are described as *inhabited*, and for which they paid the usual customs. All householders, however, were not burgesses: peers, ecclesiastics, minors, females, villeins, and infamous persons, who did not undertake the duties of burgess-ship, being excluded; which explains why many houses are recorded in Domesday as inhabited, but as having no burgesses. Nor were all inhabitants burgesses; children, apprentices, law journeymen, chamber-holders not keeping craft, and householders by themselves, were shut out by an ordinance relating to Colchester in the reign of Henry VI.

The members of merchant guilds and trading companies, who came to and fro and were non-resident tenants in the borough, were also not burgesses; and thus we find again in Domesday that the burgesses are always distinguished from the merchants of the guild; the former being generally styled "freemen;" the latter, "the men of the guild." The earliest use of the term "burgess," so far as we know, occurs in one of the Conqueror's laws. It is only used once in Domesday, and then in reference to the householders of Ipswich, while the word "inhabitants" is not used oftener. All the privileges of exclusive jurisdiction which were granted to the burgesses were given to them and their *heirs* to hold hereditarily; the word "*successors*," as denoting the grant of corporate privileges, never being found in the Saxon and early Norman charters. The *first* use of this term in our old documents occurs in a grant to the citizens of London (12 Henry III.), giving them the right of free warren at Staines; but as it is joined with the word "*heirs*," it is a question whether it does not apply to the ecclesiastical corporations of the archbishops, abbots, and priors mentioned in the beginning of the charter; "*heirs*" being used with refer-

ence to the citizens only. For, after this, we find the same king granting other liberties to the citizens, and using only the older word in his grant. This term next appears in the 12 Edward III., in a document relating to Beverley; but it is here coupled with the other word; and Beverley, it must be remembered, had formerly been an ecclesiastical establishment.

About this time also, viz., in the reign of Henry III., the word "commonalty" began to be applied to the burgesses, and *common seals* came into frequent use. "But their adoption," observes Merewether, "is no proof of the existence of a municipal corporation, because common seals were used by places that we know were not incorporated." In fact, while we find frequent acknowledgments in charters of the corporate powers of guilds and religious fraternities, we are unable to produce any proof that the doctrine of artificial succession, which applies only to a corporate body, was ever applied to the burgesses. On the contrary, we have abundant testimony that the burgesses never regarded themselves in that capacity. The famous laws of Mortmain, as we all know, were directed against the acquisition of lands by corporate bodies, because the crown thereby lost the most valuable sources of its feudal revenue, and the property fell into dead hands, as it was termed. But the burgesses, as a body politic, continued as before to purchase and acquire property, because they were not comprised under the term of corporate bodies. Therefore the 15th of Richard II., after reciting former laws against Mortmain, adds that "because mayors, bailiffs, and commons of cities, boroughs, and other towns, which have a perpetual commonalty, and others which have offices perpetual, be as perpetual as people of religion, they should not henceforth purchase to them and to their commons or offices," which some might view as an acknowledgment of their corporate character by implication. Yet

the burgesses did not so infer ; for after this, in the reign of Henry IV., the burgesses of Plymouth petitioned the king to create them into a body corporate, to empower them to purchase tenements without the king's license. Their petition was not granted till after the lapse of twenty-eight years.

The oldest charter of incorporation granted to a municipal body is that which was conferred upon the burgesses of Kingston-upon-Hull in 1439, and it differs both in its language and provisions from any municipal charter before granted.* Plymouth, Ipswich, Coventry, Southampton, Woodstock, Canterbury, Nottingham, and Tenterden were soon afterwards similarly favoured.

But, although charters of incorporation proper were not granted before the middle of the fifteenth century, the doctrine that the ancient boroughs were, by the nature of their privileges, municipal corporations, was laid down in our law-courts about the same time. In the 6 Edward IV. it was held in Common Pleas, that if the king gave land *in fee farm* to the good men of the *town* of Dale, the corporation was good. And so likewise when it was given to the burgesses, citizens, and commonalty." This decision laid the foundation of *Corporations by Inference or Implication*, so that the early charters of immunities granted by Henry II., Richard I., and John, are now regarded as charters of incorporation, which is neither historically nor legally true. Not historically true, in that the burgesses did not regard their charters in that light, for if they did, then the express grants of incorporation to Bristol and Norwich, and all other places already enjoying the immunities of a Borough, were unnecessary. And not legally true, because the essence of a corporation is its artificial succession ; whereas the succession of a borough was only natural and perpetual as long as the borough existed. Or, according to Madox, in his

* See the charter at length in Merewether's Boroughs.

Firma Burgi: "As the inhabitants of towns would always continue in perpetual succession, so every municipal body was, by natural succession, perpetual, whether corporate or not;" perpetual existence being here attributed to the perpetual existence of the city; not to any corporate body within. Therefore, we find it stated, in a law case in the reign of Edward I., that "the commonalty of London was perpetual," although the metropolis was not at that time incorporated.

In all these charters of incorporation the qualifications of the burgesses were variously described, and so it happened that numerous abuses crept in. The privileges of burgess-ship were confined in some to *select bodies*, who should have the exclusive power of electing their local officers and their parliamentary representatives. In others they were stated to belong to all who paid *scot and lot*; in others, to mere householders; in others, to potwallers; and in some even all the parishioners were qualified with the elective franchise. Other charters, again, granted chiefly in the corrupt reigns of the second Charles and James, declared non-residents, gentlemen, and farmers paying no scot and bearing no local burdens, to be burgesses; all which abuses were granted for the purpose of swamping the real burgesses, who were too independent for the crown in those days. They were all continued through the reigns of the Georges, until the Reform Bill swept all or most of them away.

The chief causes which seem to have induced the boroughs already possessing charters of immunity to petition for the further security of their privileges by the grant of Charters of Incorporation, were the encroachments which the guilds were constantly making upon the liberties of the householders. In the parliamentary rolls of the 16 Henry VI. we read that "the guilds, under colour of general words in their charters, had made many disloyal and unrea-

sonable ordinances, by which many were deprived of their franchises, for the private profit of the guilds, but to the common damage of the people. For which reason they were put under restraint in making such ordinances." And again, the parliamentary rolls of the same reign, in an entry relative to the guild of Tailors at Exeter, say, "the persons who had been admitted by the guild into the fraternity were of such number, and of such wild disposition, and so unpeaceable, that the mayor of the city could not guide and rule the subjects there, nor correct such defaults as ought by him to be corrected, according to his duty and charge. And besides, they had made divers conventicles, commotions, and great divisions among the people, contrary to the laws and peace of the king, in evil example, and likely to grow to the subversion and destruction of the city, and the good and politic rule of the same, unless due remedy was made by the king. Whereupon the king was petitioned that the guild might be annulled." Most readers of history also are familiar with the character of the London livery companies in this respect; with their frequent turbulences and explosions of jealousy, and their constant invasions upon the privileges of the city.

No account of the constitution of the old English borough, however brief, would be complete without some notice of these guilds, because they formed an important feature in the internal organisation of towns from the very earliest times. Each Roman city, in Britain as well as in the other provinces, contained its colleges of operatives, who held an ambiguous position between slavery and freedom. Each society had its own tutelary deity, in whose temples its members worshipped and celebrated their mysterious rites. The members of some colleges ate at a common table; and in all of them it was a law strictly enforced that the son should take up the occupation of his father, and that

the daughter should marry a person of her father's craft, or who was prepared to adopt it.

Under the Saxons, these voluntary associations were either secular or religious; in some cases they were formed for mutual defence against injury; in others, for mutual relief in poverty. Because each member was to contribute his share towards the support and charge of the society, they were called Guilds, from the Saxon verb *gildan*, to pay. Among the thanes of Cambridgeshire there existed a fellowship for the first purpose above stated; and a similar one we find mentioned in the laws of king Athelstane. In another fraternity among the clergy and laity of Exeter, every *fellow* was entitled to a contribution if he had to take a journey, or if his house was burned. Many of the Saxon guilds therefore resembled our modern friendly societies. At the Conquest, many of them possessed landed property of their own, and were lords over tenants; they had their *Hans Hus*, or *Guildhall*, where they elected their *Hansward* and other officers, transacted the business of their association, and gave their entertainments. Thus there was in London the Cnichten guild, or guild of English knights, which possessed a soke and land both within and without the borough; York, Dover, Beverley had their Guildhalls, and their guilds, with common property both in house and land.

In consequence of the great increase of trade after the Conquest, and to follow the example of the Flemish cities, guilds became more numerous, and were peculiarly commercial, each class of workmen in the larger boroughs, and the general body of workmen in all trades in the smaller ones, forming themselves into a body—not, however, without the sanction of the royal authority. If any borough presumed to erect a guild within its limits, without this sanction, a fine was imposed upon its burgesses. But as the advantages of union among craftsmen were so very great

in those days, *adulterine* guilds were frequently set up. The burgesses of Totnes were fined five marks by Henry II. for such unauthorised conduct; the guild of Holywell was also amerced; likewise the goldworkers of London; the guild of *bochers*, and others. All these were suppressed by the Crown.

These institutions were very necessary in that age, although they impeded the progress of industry by excluding competition. This necessity is most clearly seen in the history of the woollen manufacture. The Flemings, who first established it in England, as early as 1186, were regarded with jealousy by the common people, while the barons envied them their wealth, and often attacked and plundered them in the fairs and markets to which they resorted. The Norman sovereigns, therefore, conferred various privileges on them, not so much for the advancement of their arts, as for their protection against popular outrage and depredation, because their trade was a source of revenue to the crown. They placed them within the protection of walled towns; they granted them charters, empowering them to form themselves into guilds, to make corporate laws for their government, and to raise troops for their own defence. William the Conqueror established them in Carlisle; Henry I., in the county of Pembroke. Henry II. granted a fair for the clothiers and dressers, to be held in the churchyard of Bartholomew Priory, near Smithfield, still called the Cloth Fair; and towards the end of his reign he settled them in the West Riding of Yorkshire, in Nottinghamshire, Huntingdonshire, Lincolnshire, and Winchester.

Edward III., who had so many dealings with the Flemings on the continent, especially befriended them, and he invited over several colonies. John Kemp, a Flemish cloth worker, together with many fullers and dyers, settled at Kendal, in Westmoreland; another body settled at Norwich, where they made woollen fustians; a

third made baizes at Salisbury ; a fourth, kerseys in Devon ; and others, friezes in Wales, cloths in Worcestershire, Gloucestershire, and the southern counties, coarse cloths in the West Riding, and serges at Colchester. The inducements which Edward held out to these foreign workmen are so quaintly described by Fuller that I cannot forbear quoting his account of them.

“The intercourse now being great betwixt the English and the Netherlands (increased of late since king Edward married the daughter of the Earl of Hainault), unsuspected emissaries were employed by our king into those countries, who wrought themselves into familiarity with such Dutchmen as were absolute masters of their trade, but not masters of themselves as either journeymen or apprentices. These bemoaned the slavishness of these poor servants, whom their masters used rather like heathens than Christians, yea, rather like horses than men. Early up and late in bed, and all day hard work and harder fare (a few herrings and mouldy cheese), and all to enrich the churles, their masters, without any profit unto themselves. But oh ! how happy should they be if they would but come over into England, bringing their mystery with them, which would provide their welcome in all places. Here they should feed on fat beef and mutton, till nothing but their fulness should stint their stomachs ; yea, they should feed on the labours of their own hands, enjoying a proportionable profit of their pains to themselves. * * * Happy the yeoman’s house into which one of these Dutchmen did enter, bringing industry and wealth along with them. Such who came in strangers within their doors, soon after went out bridegrooms, and returned sons-in-law, having married the daughters of their landlords who first entertained them. Yea, these yeomen, in whose houses they harboured, soon became gentlemen, gaining great estates to themselves, arms, and worship to their estates.”

The various trades in the woollen manufacture, the fullers, the clothiers, the tapisers, the weavers, had their respective guilds, and were chartered companies; and besides them there were the goldsmiths, who obtained the right of assaying metals; the vintners, who had similar authority to gauge wines; the saddlers, the barbers, and the carpenters. The tools of a carpenter at Colchester, we are told, were—a broad axe, worth fivepence—another axe, value threepence—an adze, twopence—a square, one penny—and a navegor or spokeshave, one penny, making the total value of his chest of tools worth twelvepence. The Mercers Company was composed of the hatters and the harriers; the Milliners Company imported Milan goods, such as brooches, spurs, and trinkets; the Drapers manufactured or *draped* cloth. These, together with the Haberdashers, who dealt in pins chiefly, were the most influential of the London guilds. Forty-eight companies, however, had the right of sending burgesses to the municipal council; the grocers, mercers, drapers, fishmongers, goldsmiths, and vintners sent six councillors each; the haberdashers, hurriers, saddlers, weavers, tapisers, and barbers, four each; the carpenters, two; thirteen companies out of the forty-eight electing sixty-two common councillors. This fact alone readily explains what was stated before, that the guilds had become too powerful for the boroughs, and that the latter, in self defence, petitioned to be placed on an equal footing with them by the grant of charters of incorporation.

Chaucer has given us portraits of five of these guildsmen, “warm, comfortable men,” as he styles them:

“A Haberdasher and a Carpenter,
A Webbe, a Dyer, and a Tapiser
Were all yclothèd in one livery,
Of a solemn and great fraternity.
Full fresh and new their gear ypickèd was,
Their knives were ychapèd not with brass,

But all with silver wrought, full clean and well ;
 Their girdles and their pouches every del.
 Well seemèd each of them a fair burgéss
 To sitten in a guildhall, on the dais ;
 Everich, for the wisdom that he can,
 Was shapely for to be an alderman.
 For cattle hadden they enough, and rent ;
 And eke their wivés would it well assent ;
 And elles certainly they were to blame :
 It is full fair to be yelep'd Madáme ;
 And for to go to vigils all before,
 And have a mantle royally ybore."

That the trades guild of the fourteenth century was "a solemn and great fraternity," as Chaucer thus describes, may be readily seen upon a consideration of its internal organisation. The chief officers were termed masters and wardens, and their power was as complete over the members and their apprentices, as that of the feudal lord over his vassals. All matters relating to the binding of apprentices, the admission of freemen, the preservation of the rights and privileges of the craft, the detection of frauds, the enactment of sumptuary laws, and the arrangement of the elections for the common council were under their control. If the sovereign demanded a tax, loan, or benevolence from the guild, he applied to the master or warden ; if a craftsman came to the hall shabbily dressed, the master took him sharply to task and punished him ; if any one was found practising the craft of the guild without having been apprenticed to it, and duly admitted into the fellowship, it was the warden's duty to prosecute him, as also any member who did not make his articles of the size and quality prescribed by the guild, and sell it at the price fixed by it. Not that these regulations insured to the customer a genuine article, for the guild was often negligent, frequently corrupt in this respect, so that we find it a cause of complaint against the weavers in the reign of Edward II., that the bailiffs of their guild over-looked

any one who sold cloth under the name of *Cloth of Candlewick Street*, although such cloth was not of the kind and quality stated.

The annual election of the master and warden of a guild was a grand and picturesque ceremonial. All the members of the guild, with their wives, went to the church of their patron saint in solemn procession, habited in their rich and magnificent costumes, and accompanied by singing clerks and priests in full canonicals. The mayor and aldermen of the city, attired in their dazzling scarlet robes, also formed part of the procession; whilst, scattered along the line, appeared tall waxen tapers, blazing away from amidst their "costly garnishments." After service, the company proceeded in the same state to their hall, where the most luxurious dinner which the age could produce was set out and at once disposed of, before business began, according to the ancient English custom. Then followed the election ceremony. The outgoing officers left the hall, and presently re-entered with garlands on their heads, preceded by minstrels playing. Some merriment then ensued in trying the garlands on the heads of the members, till it was found that they exactly fitted those who had already been selected in a private and more business-like meeting of the guild. These members, thus donned with garlands, then took their oaths; the golden cup was passed round from the old officers to the new, their healths were drank in acclamations, and they were welcomed, amidst great enthusiasm, as the governors and guardians of the guild for the ensuing year.

The rank of alderman, as Chaucer describes in the passage I have quoted, was a great point of ambition with these well-to-do citizens. Some of the qualifications required for this dignity he mentions, viz., the possession of a certain number of cattle, and a certain amount of rent—and to be wise in mind and shapely in figure. So also Stow tells us

that it was necessary for a person proposed as alderman, that he should be without deformity in body, wise and discreet in mind, wealthy, honourable, faithful, free, and of no base or servile condition; that no disgrace which might happen to him on account of his birth might thence redound on the rest of the aldermen or the whole city. The alderman, even so late as the fourteenth century, still retained some marks of his old baronial dignity, and he was interred with all the pomp which attended the burial of a lord baron. His wife was called Madame, My lady; she took precedence on public occasions, and had her mantle carried before her by a page.

The 'prentices of these great master-workmen were kept in strict order during their minority. For all that, they were a free, sturdy, riotous, and unruly set of youths. Chaucer has a description of one, belonging to the craft of Victuallers, who was

“ Gaillard as goldfinch in the shaw,
Brown as a berry, a proper stout fellâw,
With lockés black, combèd full fetisly,
Dancen he could so well and jolily
That he was clepéd Perkin Revelour.
He was as full of love and paramour,
As is the hivè full of honey sweet.
Well was the wenche with him might meet.
At every bridal would he sing and hop;
He loved bet' the tavern than the shop.
For when there any riding was in Cheap
Out of the shoppe thither would he leap;
And till that he had all the sight yseen,
And dancèd well, he would not come again.

But woe betide him! if he was caught in any *faux pas*, such as playing at dice in the street. His master brought him before the guild; and then two “tall men,” disguised in frocks and hoods, would suddenly fall upon him, and there, in the presence of the master and wardens, “without any words speaking,” they would pull off the shirt and doublet of Perkin Revelour, and there upon his naked hide would

spend the whole of "two pennyworth of birchen rods, for his unthrifty demeanour."

Let us now, as a conclusion, take a glance at these city tradesmen, engaged in their daily traffic. All the different traders and workmen generally congregated together in one borough, if they lived in the provinces, so that each large borough became known for some special trade carried on by its burgesses. Thus York was known for the weaving of coverlets; Norwich, for the manufacture of worsted; Gloucester, for its ironworks. So also in London the merchants and craftsmen of each trade had their shops in the same street, which in some cases derived its name from them, as Fish Street, Lombard Street, Candlewick Street. There is an old poem, called "The London Lyckpenny," written by John Lydgate during the first half of the fifteenth century, which describes very minutely the business habits of the London tradesman.

A Kent yeoman, having come up to town in search of legal redress, is unable to obtain it because he has not the means to pay his fees. So he resolves to see the sights of the town before he returns home. While yet within the precincts of Westminster Hall, his hood is stolen by some cut-purse in the crowd, the gaping wonder with which he stares at everything no doubt marking him out as a country bumpkin, and therefore a safe victim for the sharpers. No sooner does he get outside the door than he is instantly set upon by Flemish pedlars. "Master, what will you buy? Fine felt hats? Or spectacles to read? Lay down your silver, and here you may speed." But "wanting money, he might not be sped," so he passes on to Westminster Gate, which he reaches about noon, "when the sun was at high prime." This is the dinner hour of the common people, and he finds himself surrounded by cooks' stalls, and they, noticing that he looked hungry and forlorn, offer him bread,

ale, and wine, "ribs of beef, both fat and full fine," and spread a fair cloth for him, to sit down and begin. But, hungry as he is, his empty stomach must keep companionship with his empty purse, and he hies him unto the Borough, where he finds every street alive and swarming with traffickers, all crying their several wares.

"Hot peascods!" one began to cry;

"Strawberry ripe and cherries *in the ryse*!"

And one bade him come near and buy some spice, pepper, and saffron. Through this Babel he proceeds to "the Chepe," where the regular tradesmen of the guilds all stood at their shop doors and tempted the passers-by to purchase, somewhat after the same fashion of certain drapers in our days. One offers him velvet, silk, and lawn; another more importunate takes him by the hand, and, displaying his goods with every art and cunning device, exclaims, "Here is Paris thread, the finest in the land;" all which, however, only bewilders the poor countryman, who "never was used to such things indeed;" and so he goes on by London Stone, "through all Canwyke-street," where the tradesmen pester him more than ever. For he is now among the cheap Johns; the second-hand clothiers; the vendors of "hot sheep's feet;" of mackerel; and of green rushes to carpet his rooms withal; and one seeing him bareheaded offers to sell him a cheap hood. Close by is East Chepe, the famous haunt of Sir John Falstaff and Prince Hal; the site of Mistress Quickly's Blue Boar Inn. Here "one cries ribs of beef," and many, "hot pies." Amidst all the wrangling and market din, the taverns send forth a clatter of pewter pots and the noise of riot and contention; while higher than all, the ballad singers roar out lustily to the music of harp and pipe. From all this confusion our rustic "*yode anon*," and he gets him to Cornhill, at that time the market for stolen goods. He,

therefore, sees here "much stolen gear," and lo! and behold! his own hood which had been taken from him in the morning, and which he knows again as well as he knows his creed. But "lack of money" is again his evil genius, and he has had enough law for the present, so he wends his way bareheaded still, and presently is pressed into a tavern by an officious landlord, who takes him by the sleeve and asks him to "assay" his wine. Quite wearied with his adventures, he cannot resist this last appeal to his beggarly purse; he spends the only penny he has got in a pint of wine, and, sore-a-hungered, wends his way home.

FOURTH ORDINARY MEETING.

ROYAL INSTITUTION, November 27th, 1865.

J. A. PICTON, ESQ., F.S.A., PRESIDENT, in the Chair.

Ladies were present at this meeting, on the invitation of the Council.

The minutes of the last meeting were read and signed.

Messrs. Frederick C. Estill, Arthur W. Biggs, William Mountfield, and Dr. Spola, were balloted for, and duly elected ordinary members.

Dr. COLLINGWOOD drew attention to the investigations of three foreign naturalists, bearing upon the Darwinian theory. The first of these was Fritz Müller, who had written a work entitled, "Für Darwin," in which he examines the theory by the test of the development of the crustacea, and the results he arrives at are corroborative of the correctness of Mr. Darwin's views. The second was Dr. Walsh, of America,

who has been investigating the variations of insects dependent upon the nature of their food-plant, and comes to the conclusion that he cannot discover where varieties end and species begin, and is disposed to consider that varieties strengthen and become species, and that the difference between them is merely one of mode and degree. The third was M. Matteucci, who has described an apparently rudimentary electric organ in the ray, analogous to that known in the torpedo, and the existence of which might be considered as linking the perfect electric organ of the latter with non-electrical fishes.

Mr. FERGUSON referred to the abundance of the humming-bird hawk-moth during the past summer, and instanced its occurrence as far north as the northern part of Aberdeenshire.

Dr. GINSBURG, Vice-President, then took the Chair, and a paper was read

ON ENGLISH COINAGE, .

By J. A. PICTON, Esq., President.

After the paper some discussion arose, in which Dr. Ginsburg, Mr. Towson, Dr. Collingwood, and others took part; and the meeting then adjourned.

FIFTH ORDINARY MEETING.

ROYAL INSTITUTION, December 11th, 1865.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

Ladies were present at this meeting, on the invitation of the Council.

The minutes of the last meeting were read and signed.

Mr. ENGLISH exhibited some paper made from the bamboo cane, which had been sent by Mr. Robertson Gladstone, and observed that the bamboo was likely to be extensively used in paper making, thirty-one vessels having been chartered to convey the bamboo from Jamaica to New York, in addition to others chartered to bring it to this country. The bamboo could be had for the gathering, and was, therefore, inexpensive.

The Rev. Mr. HIGGINS mentioned, as a fact illustrating the extreme mildness of the season, that in a walk round his garden on the previous day he found thirty-one different plants in bloom—a circumstance of very unusual occurrence on the 10th December.

The Rev. J. Edwin Odgers was duly elected an ordinary member of the Society.

Captain Walker, of the ship “Trenton,” was duly elected an Associate of the Society.

A paper was then read on

INDIA : ITS HISTORY, CHARACTERS, AND PROSPERITY ;

WITH MANNERS AND CUSTOMS OF THE THREE PRINCIPAL RACES,
THE HINDOOS, MAHOMEDANS, AND PARSEES.

Illustrated by a Panorama, and Views of the three Presidencies, Calcutta, Madras, and Bombay; Court Dresses of the Ladies and Gentlemen; and various Cities, Palaces, &c., exhibited by means of the Oxy-Hydrogen Lantern.

BY MR. D. MONECKJEE LALCACA.

SIXTH ORDINARY MEETING.

ROYAL INSTITUTION, January 8th, 1866.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The minutes of the last meeting were read and signed.

Mr. James Thomson was duly elected an ordinary member of the Society.

A communication from the Very Rev. the Dean of Westminster, relative to the restoration of the Chapter House at Westminster, having been read, it was unanimously resolved, "That this Society desires to record its cordial approval of the proceedings taken to induce her Majesty's Government to adopt measures for the restoration of the Chapter House at Westminster, as a national monument alike interesting from its beauty as a work of art, and its connexion with the early history and progress of the English constitution; and would lend its aid in earnestly pressing on the proper authorities the desirability of early action, which it believes will be gratifying to the nation at large."

It was further resolved, "That the President be requested to comply with the wish of Dean Stanley, the chairman of the Restoration Committee, to add his name to that committee."

Mr. A. HIGGINSON exhibited a garment made from the Lace-bark tree of Jamaica.

The Rev. H. H. HIGGINS made some observations regarding the calculation of the rising and setting of a star without the use of instruments.

Dr. GINSBURG exhibited an ancient Jewish marriage contract.

The following paper was then read :—

AN ENQUIRY INTO THE ORIGINAL LANGUAGE OF ST. MATTHEW'S GOSPEL.

By JOHN NEWTON, Esq., M. R. C. S.

1. WHAT WAS THE LANGUAGE SPOKEN BY OUR LORD ?
2. WHAT WAS THE LANGUAGE IN WHICH MATTHEW WROTE HIS GOSPEL ?

The questions which I have put at the head of this Paper might well engage our attention as literary exercises, even if they had not the additional interest derived from sacred associations. I shall discuss them in the order in which they are placed, since the answer to the first question must be allowed great weight in deciding the second. At the outset, then, the broad fact confronts us, that the discourses and sayings of our Lord have been preserved to our time in one language—the Greek. From this, as the one sole fountain-head, all the innumerable versions, ancient and modern, have been derived. Must we, therefore, take it for certainly proved that He spoke Greek ? Surely not. For, whether right or wrong, it seems to have been the almost universal opinion, from the days of Eusebius, Chrysostom, and Jerome, even down to our own time, that Christ spoke the Hebrew language ; not, indeed, the literary Hebrew as we have it in the sacred books, but a modernised dialect of it, containing many Chaldee and Syriac words. The reasons for this opinion are many and cogent. We shall briefly state them.

The sacred literature of the Jews has been preserved, by what may most truly be called a miracle, down to our own times. It has always been transmitted by them with super-

stitious care, and regarded with a reverence approaching to worship. It is written throughout in Hebrew, and no one has ever disputed that this is the original language. We have here an unbroken succession of Hebrew records, from the time of Moses to that of Nehemiah and Malachi; thus extending to within about 390 years of the birth of Christ. The language in which they are written is often styled by the writers themselves "The Jews' language" (Isa. xxxvi. 13; Nehem. xiii. 24). In the New Testament it is called "The Hebrew Tongue" (John v. 2; Acts xxvi. 14). By the later Jews, "The Holy Tongue," a phrase that well expresses their affectionate reverence. Now, we have no record that the Jews ever lost the use of this their native language. They had been carried away captive into Egypt, Assyria, Babylonia, and Persia, yet they still retained it, as we see in the pages of Ezra and Nehemiah. Many a glimpse, indeed, is afforded us of the tenacity with which the exiled Hebrews clung to the religion and language of their forefathers. By the rivers of Babylon they were called on to sing one of those sacred songs the fame of which had been wafted to foreign lands; but they refused to sing Jehovah's Song to make mirth for the heathen and the stranger. Psalm cxxxvii. 4. During the interval between the last of the inspired Hebrew writers and the birth of Christ, two fresh waves of conquest swept over their land; but neither their Greek nor their Roman masters again displaced them from the country of their forefathers. The great temple of Solomon, pillaged of its treasures, and left a ruin, by the Babylonians, but repaired through the piety of Nehemiah, and farther beautified and extended by Herod the Great, remained to the time of Christ. It was looked on as the palladium of Jewish nationality, and something of the ancient splendour of their religious rites was still preserved. To the Holy Land, but especially to Jerusalem, the Jewish pilgrims flocked from all

parts of the earth. It was their dearest wish that its sacred soil should be their last resting-place. In this centre of Judaism, then, if no where else, we may surely infer that the born Jew spoke the tongue of his forefathers, peculiarly endeared to him, as it was, by a thousand associations. That the common dialect of the people in Christ's time was no longer the Hebrew of their sacred books we might also infer. The lapse of 400 years had left their mark. Its grammar would be much the same, but its vocabulary would be extended by the introduction of many foreign words—Syriac and Chaldee, Persian, Greek, and Latin. Nor are we left to random guesses on this point, for a vast mass of Jewish Commentary (Talmud), and Paraphrase (Targums), on the sacred Books, has come down to our time, considerable portions of which were committed to writing soon after the destruction of Jerusalem and final dispersion of the Jews. These are all written, not in Greek or Latin, but in various dialects of the Hebrew.

When we turn to the New Testament itself, we find that the names of places are nearly all Hebrew, as Jerusalem יְרוּשָׁלַיִם = "abode of peace;" Bethlehem בֵּית לֶחֶם = "House of Bread." The names of persons are also Hebrew, as Jesus, the translation in the Septuagint, or old Greek version, for Joshua יְהוֹשֻׁעַ "whose help is Jehovah." Mary, written in the Greek Μαριάμ, is from the Hebrew מִרְיָם, "Miriam," the sister of Moses. Simon, or Simon Bar-Jona, the Hebrew name by which Christ is always represented as addressing Peter, &c., &c. Throughout the Gospels, Hebrew words spoken by Christ, on certain solemn occasions, are noted, such as Ephphatha, "Be thou opened;" Talitha Cumi, "Maiden, arise!" Over His Cross was a Hebrew inscription; and some of His last words were, "Eli, Eli, lama sabachthani." These are a quotation from the 22nd Psalm, and stand thus in the Hebrew Bible: אֱלִי אֱלִי לָמָּה עֲזַבְתָּנִי,

or, in Roman letters, "Eli, Eli, lamah azavtani." Now, as the first is evidently a translation of the old Hebrew into the common dialect of Christ's time, it will suffice to shew us how slight the difference really was. Not greater, in fact, than the language of Tyndale's first English Testament, printed 340 years ago, is from the English of our day. The Greek-Jew, Paul, addressed the Roman captain in Greek, but the Jews in Hebrew. Acts xxi. 37. And he it is who records the last appearance of Christ on this earth, when the vision flashed on him as he journeyed towards Damascus. Those few words, which turned the Jewish persecutor into a Christian Apostle, were spoken in the Hebrew tongue.

Nevertheless, in spite of such facts as these, several writers of ability have maintained that our Lord spoke Greek. We may instance Diodati, whose famous work, "De Christo Græce loquente," was published in 1767, but has been frequently reprinted and translated since. But by far the most able and zealous advocate for the Greek view is Dr. Alexander Roberts, whose recent work, "Discussions on the Gospels," if one may judge by the numerous commendatory notices of it that have appeared in the Reviews, and also in recent standard religious works, appears to have quite turned the tide against the ancient opinion. He does not, like Diodati, affirm that Our Lord *never* spoke anything but Greek, but he affirms (p. 99, 2nd edition) "that Greek was the language which Christ and His Apostles *usually* employed, and that whilst they sometimes made use in public of the Aramaic dialect, such an occurrence was quite exceptional to their ordinary practice, and is on that account specially noticed in the evangelic history."

This view he maintains with uncommon ingenuity and variety of argument. I shall therefore, in justice to so able

an advocate, give you a pretty full abstract of his work, and then hope to shew that the ancient opinion can be abundantly sustained.

Dr. Roberts very distinctly states the object of his book, as follows :—

“I do not undertake to prove that our Lord and his followers *never* made use of the Hebrew language. That would be a rash, and, I think, untenable assertion. But what I maintain, and mean to prove, is, that Greek was the language which they *habitually* used in their public addresses; so that, if any one affirms that Hebrew was used on some occasions, when their discourses are reported in Greek, it remains with him to shew it. I may be inclined to believe that *some* such occasions are *possibly* to be met with in the Gospel history, but at any rate I affirm, that these were *altogether exceptional*, and that Greek was the language usually employed in addressing the very humblest of the people. The position which I uphold is thus the exact converse of that usually maintained upon the subject. While it is now generally said that our Lord spoke for the most part in Hebrew, and only sometimes in Greek, I maintain *that he spoke for the most part in Greek, and only now and then in Hebrew*; and if I fail to adduce sufficient proof that Greek was the tongue spoken by our Lord and his disciples, then let judgment be given accordingly.”

To illustrate his views, he refers to the French Canadians and the Dutch at the Cape Colony, who speak the English language usually, though they preserve their original tongue also. “Or,” he says, “as still more accurately and clearly representing the state of things which then existed in Palestine, I may refer to the Channel Islands: Guernsey, for instance, where the old Norman French, in a corrupted form, is still used by the lower orders of the people, though almost all understand and employ English. So that an English-

man, hearing little but his own tongue, would scarcely suspect that another language was in frequent use by the lower classes." He then proceeds to give his supposed proofs of this position :

"It must be admitted by all that the Greek tongue had become very widely and generally known throughout the world before the birth of Christ. Greek indeed was then the common language of all civilised nations, and thus formed a medium of intercourse between countries far separated in geographical position, as well as differing greatly in national habits and institutions. Many and powerful causes had contributed to this result. First, the transcendent merits of the language itself. Never has a tongue been spoken by man which can vie with the Greek in all that constitutes the excellency of a language. And not only was the Greek the very queen of languages, but it had been so used as to give rise to many of the very masterpieces of human intellect and genius. Such were the allurements of their literature and their arts, that, as Horace says,

Grecia capta ferum victorem cessit.

Captive Greece held captive the ferocious victor.

Again, the triumphant march of Alexander the Great, from his native Macedon to the banks of the Indus; the complete subjugation of so many different nations by his arms; the settlement of Greek princes on the thrones of those mighty kingdoms, into which at his death his colossal empire was divided; and the establishment of numerous colonies of Greeks throughout the countries which he had subdued, all necessarily led to the very wide diffusion of the Greek language, and to a general tendency to imitate Greek manners and institutions. Indeed there exists the amplest and clearest testimony to the wide-spread ascendancy which had been gained by the tongue of Greece before the birth of Christ. A familiar acquaintance with it was more or less

possessed by almost all those nations which were then embraced under the sway of Imperial Rome. In the reign of Tiberius, as Valerius Maximus informs us, the Senate resounded even to deafening with Greek debates; and Dio Cassius relates that the same Emperor was accustomed, very frequently, to hear cases argued, and himself to investigate them, in the Greek language. Suetonius bears equally striking testimony to the very general use of Greek by the Romans, under Tiberius and Claudius; and, by the account which he gives of the efforts made by the former Emperor to discourage its use in certain cases, shows how greatly it had encroached on the vernacular language." The pages of Martial, Juvenal, and other classic writers afford abundant "proofs that while, during the period in question, almost countless dialects, in addition to the native Latin, might have been heard among the vast and multifarious population of Rome, the various tribes there mixed together possessed in the language of Greece, then become the language of the world, a means whereby they could communicate with one another." "Accordingly, such facts as the following present themselves to us in the literature of the period:—The Apostle Paul wrote *to* the Romans in Greek; Clement, of Rome, wrote *from* that city in Greek; Ignatius, like Paul, addressed the Roman Christians in Greek; Justin Martyr, although long resident in Rome, composed his two apologies to the Emperor in Greek; and Irenæus wrote from Lyons in Greek, on a theme interesting to, and intended to be considered by, the whole Christian world. The Greek language was one of the few things common to the whole Roman Empire. From the mighty capital to the remotest provinces, the tongue of Greece was employed; and while there were numerous vernacular dialects, which lingered side by side with it, in the many different countries then forming the vast *Orbis Romanus*, it

was Greek which formed a medium of intercourse to the various nations thus politically united, and which was especially made use of as the language of commerce, letters, and public instruction. And now the important question arises: Is there any reason to suppose that Palestine formed an exception to what has just been stated? It seems almost impossible for any one to consider the national history of the Jews, for a century or two before the commencement of our era, without inferring that Greek must have obtained a large ascendancy among them. The several dynasties to which they were successively subjected—Egyptian, Syrian, Roman—all tended to this result. A new wave of Hellenic influence passed over the land, with every fresh change which occurred in its political condition. Ptolemy, Antiochus, and Herod, in whatever else they differed, were alike certain to contribute to the spread of Grecian usages in Palestine. The power of the monarch was also vigorously put forth in the same direction. Thus we are told, in the first book of Maccabees, ‘that King Antiochus Epiphanes sent letters to Jerusalem, and to the cities of Judah, that they should walk after the strange laws of the land.’ Again, in the 2nd Maccabees, the same monarch sent to compel the Jews to give up the customs of their fathers, and no longer to live after the laws of God; and also to pollute the temple at Jerusalem, and to name it that of Jupiter Olympius; and there went forth a decree against the Jews, that those of them who would not make the required change to the Grecian customs should be put to death. Tacitus also relates the efforts of Antiochus ‘to root out the superstitions of the country, and to establish the institutions of the Greeks.’ Josephus tells us how Aristobulus and other Jewish leaders were styled Φιλελλην, *a lover of the Greeks*. Herod the Tetrarch (ruler of Galilee during our Lord’s ministry) openly professed himself more friendly to the Greeks than to the Jews. Many other influ-

ences favourable to Greek supremacy existed. ‘Ever since the time of Alexander the Great,’ says Credner, ‘the Jews had emigrated from Palestine to Greek countries. In these lands, even the more learned among them, such as Philo, forgot their mother-tongue; and this happened all the more readily, since, from their sacred books having been translated into the Greek language, provision had thus been made even for their religious necessities. Nevertheless, these Grecian Jews, known as Hellenists, remained in unbroken communion with their native country. Jerusalem was always regarded by the Jews as their capital; the Sanhedrim of that city was, in all religious points, their highest authority; and thousands of Greek-speaking Jews travelled annually to Palestine, in order that, in the national sanctuary at Jerusalem, they might present their supplications, and pay their vows, to the Lord who dwelleth in Zion. At the same time, first the Greek, and then the Roman conquerors, filled the land; and from the time of Herod, not only were Greek artists and artizans to be seen at work in Palestine, but Greek colonies were also, in no small numbers, to be found. The combined influences of these circumstances had, in the time of Christ, brought about this peculiar condition of things in Palestine, that the Greek language was generally understood, while the properly Jewish language was understood only by the strictly Jewish inhabitants; so that, one may say, almost all the dwellers in Palestine understood Greek, but not all their own vernacular language.’”

So much from Credner, who, however, did not hold the opinion of Dr. Roberts, who continues:

“The numismatic evidence points the same way; for by far the greater number of the coins circulating in Palestine in our Lord’s days, viz., those of the Herodian family, bore Greek inscriptions. Again, take the instance of Josephus, almost a contemporary of our Lord. All his extant writings

are in Greek, and his quotations from Scripture are mostly made from the Alexandrine version. Again, the Apocryphal books of the Old Testament exist only in Greek. One of them, Ecclesiasticus, we know, was at first written in Hebrew or Aramaic, but the original was soon replaced by a translation. It may be admitted, also, in the face of some difficulties, that the first book of Maccabees was originally written in Hebrew, but we know for certain that both books were current among the Jews in Greek before the birth of our Saviour. And now we come to the proofs furnished by the New Testament itself. Here we possess a collection of writings, composed for the most part by Jews of Palestine, and primarily intended to some extent for Jews of Palestine, and all of them written in the Greek language. Now, what is the natural inference? Is it not that Greek must have been well known, both to the writers and their readers, and that *it* was deemed the most fitting language, at the time, in which for Jews of Palestine both to impart and to receive instruction? And when we find the author of the Epistle to the Hebrews writing to the Jews in Greek, how can we escape the conclusion that they generally understood that language? How could Palestinian Jews, like Peter, James, and John, 'unlettered and ignorant,' as they were styled by their own countrymen, have written in Greek, unless that were the language which men even in the humblest station naturally employed? There is indeed one mode of escaping from the conclusion which follows on this question, and which has been urged by Greswell and others. They believe that the gift of tongues conferred on the Apostles at the day of Pentecost was given for this very purpose. But the idea that the Apostles were taught Greek by the immediate interposition of heaven seems repugnant both to the Bible and to common sense, and most recent commentators have, with Alford, considered the gift of tongues as having been a sud-

den and powerful inspiration of the Holy Spirit, by which the disciples uttered, not of their own minds, but as mouth-pieces of the Spirit, the praises of God, in various languages hitherto, and possibly at the time itself, unknown to them. And, to turn to the gospels : the fact of a few Aramaic words occurring in them does not prove that our Lord habitually spoke Aramaic. It proves exactly the contrary. The constant formula of the inspired writers is, 'Jesus said,' or 'He spoke these words,' without the slightest hint that they are giving us a translation only of the words uttered. It has been argued that the occurrence of such terms now and then in the reports of our Lord's discourses proves that He generally made use of the Syro-Chaldaic language, and that, accordingly, it is in these few instances only that we have examples of the very words He employed. But such a conclusion manifestly rests on a *petitio principii*—there is not the least foundation furnished for it in the Evangelic narrative. The writers seem most anxious to give us the exact words our Lord actually employed, and if they report so few words spoken in Aramaic, it was because that language was rarely used by Him. Of the solemn cries He uttered upon the cross, only one is given in Aramaic, the rest in Greek. As for many other words, such as *Raca*, *Corban*, *Amen*, *Rabbi*, doubtless these Aramaic words had crept into the Greek commonly spoken in Palestine.

"Again, we read, at his Sermon on the Mount, that amongst the multitudes present were many from Decapolis, and from the sea-coasts of Tyre and Sidon, which were Greek colonies. If they were 'astonished at his doctrine,' they must have been able to follow his discourse. If we turn to the Acts of the Apostles, we find only two occasions throughout the book on which Hebrew is spoken of as being employed, namely, the address of Paul to the excited multitude at Jerusalem, and the words that fell on his ears from

heaven on the road to Damascus. Peter's discourse to the assembled multitudes bears every mark of having been delivered in the Greek language. His quotations from the Old Testament are manifestly from the Septuagint version, and only in the Greek could he have been understood by the mixed multitude assembled from every country under heaven.

“As to the Greeks, whose widows were neglected in the daily ministration by the Hebrews in the Church at Jerusalem, the Hellenists, *Ελληνισταί*, denoted those Jews who had relaxed in the stringency of their Judaism. Stephen's speech was evidently in Greek, as all the numerous quotations from the Old Testament Scriptures are from the Septuagint, and proves, if any further proof were needed, that the Sanhedrim whom he addressed were familiar with the use of the Greek tongue. To return to the Gospels, it is an important and suggestive fact, that all the records we possess of our Saviour's teaching are contained in the Greek language. *According to the common view we have thus scarcely a single word* of what he actually said, of all the precious sayings he uttered. I would ask, Is this likely? Nothing but the most overpowering evidence should convince me of what I believe to be in the highest degree improbable. Whence came that peculiar dialect of the Greek in which most of these books are written, unless it was a spoken one? Again, most of the quotations from the Old Testament to be found in the New are not independent translations from the Hebrew Scriptures, but are more or less exactly from the ancient Greek translation called the Septuagint. This version, then, was the great source whence the Apostles derived their Old Testament citations; and it must be admitted that the fact stated points to their habitual use of the Greek, and not the Hebrew language. Grinfield says, ‘There is no evidence to show that they were acquainted with the original

Biblical Hebrew, for, wherever Hebrew words are introduced in the New Testament, it is in the vernacular Syro-Chaldaic of the day. Even the solemn exclamation from the cross is not expressed in the words of the Psalmist; it is spoken in the vernacular dialect.' The hymn of the Virgin Mary is made up entirely of Septuagintal expressions, and bears internal evidence of having been originally composed in Greek. When our Lord stood up in the Synagogue at Nazareth, it was the Greek Bible from which he read. The ancient Hebrew was not understood by the common people, and the Chaldee paraphrase was not then written.

"There has been much dispute as to the original language in which the Gospel of St. Matthew was written. It was the belief of many amongst the earliest fathers and ecclesiastical writers that St. Matthew wrote it in the dialect of his country, the Aramæan, or modified Hebrew; and this opinion is strenuously maintained by many scholars in our own day. They of course regard our present Greek gospel as being a version only of the original work, though probably made in the lifetime of the Apostle himself. Others have as strenuously maintained that our present Greek Gospel is the work of the Apostle; whilst others have tried to assimilate the two views, by supposing that Matthew wrote both a Greek and Hebrew Gospel, though the latter has long been lost. But the patristic evidence on this point is confessedly both weak and contradictory; and if it can be proved that our Lord and his Apostles habitually spoke Greek, what necessity was there for a Hebrew Gospel at all? The strongest argument, however, against a Hebrew original is to be found in the Gospel itself. It possesses throughout all the characters of an original, and not of a translated work. Unlike the Septuagint, which is full of slavishly copied Hebraisms, the writer, while he writes in the same peculiar dialect of the Greek as the other gospels, avoids all awkward Hebraisms. His quota-

tions from the Old Testament sometimes follow the Septuagint, but much more often are more or less independent of it, and are adapted to bring out the idea which he desired to develope. He also very frequently uses the Greek imperfect, so as to give a beauty and precision to the meaning, which could not have been obtained by a literal translation from the Hebrew, and which is even frequently missed in our own English version. So that internal evidence derived from the study of the gospel itself is all on the side of its being the original, and not a translation. All the ancient versions, even the Peshito-Syriac, seem to have been made from the Greek; and the text of Dr. Cureton's garbled Syriac MS. may be most readily accounted for by supposing that a version of the Greek original was made at a very early period into Hebrew, and that this, with many omissions and interpolations, was the source whence the ancient version discovered by Dr. Cureton was derived."

Dr. Roberts, in conclusion, dwells on the importance of the issue at stake. He says, "I claim, then, to have established that our Lord and His Apostles constantly made use of the Greek language. And I affirm that throughout the whole of his public ministry, whether he addressed the rich or the poor, the learned or the ignorant, in the city or the country, our blessed Lord continually made use of the Greek language. Who would not feel a new interest in the beautiful words, if he felt beyond a doubt that these words, as they stand in our Greek Testaments, were the very words that proceeded out of our Saviour's mouth? Under the belief that our Lord spoke an Aramæan dialect, a charm has been given to the study of Hebrew, Syriac, and Chaldee which they would not otherwise have possessed. But if I have succeeded in the leading argument of this work, it will be felt that a crowning glory was added to the Greek lan-

guage by its having been selected and employed by the Son of God. Many writers have dwelt on the delicate shades of meaning which are suggested in the discourses recorded in the gospels by the employment of different Greek words and tenses. But these observations will lose much of their force and propriety, if it be supposed that our Lord and his disciples spoke in Aramaic, and that we are only reading a translation of the words actually employed. Protestant writers insist much on the distinction between *petros* and *petra*, in the words addressed by our Lord to Peter (Matt. xvi.); and granting that these words were spoken in Greek, of which, I believe, there is no doubt, the contrast clearly indicated between them cannot be overlooked. The first means a stone, but the second a rock. But if our Saviour spoke in Aramaic the distinction vanishes, as we see in the ancient Syriac-Peschito, and also in the Curetonian Syriac, where the same term is employed in both clauses. The coincidences between the three first gospels, which are so frequent and striking, are at once explained if we believe that they all wrote in the same language which our Lord himself had spoken, and differing only, as all independent writers will, even in describing the same things. We still possess the very words which issued from His lips in our existing Greek gospels, and may thus feel that the Divine Redeemer is yet speaking to us in the same tones in which He addressed His contemporaries, and in which He will continue to teach, comfort, and instruct all succeeding generations."

So far Dr. Roberts, who has argued with all the energy and one-sidedness of a special pleader.

He has looked at the question from a wrong point of view. Educated himself entirely in Western prejudices, manners, and languages, he sees every thing through European spectacles. One of a nation descended from the great

Aryan or Indo-Germanic stock, and educated, according to our Western habit, in what are called the Classics, Greek and Latin, he naturally carries his Western notions and prejudices into a question that relates to perhaps the purest race of the East. Of course the Jews spoke Greek near two thousand years ago. How could it be otherwise? The Greeks had once overrun their land, and parcelled it amongst their generals. Is not Greek, also, the finest of languages? The Jews, then, would of course learn Greek at once from their conquerors, and speak henceforth nothing else. *Verbum sap.*

Now let us see what the Doctor had really to prove, and then we shall be the better able to realise how utterly he has failed. He undertook to prove to us that the Jews, the most obstinate and conservative race even of the unchangeable East, had almost ceased, even in their native land, in the days of their great Messiah, to speak their own language, linked as it was with all the glories of their race! that, instead, they then spoke the tongue of the Greeks, whom we know they looked on as aliens in blood, in religion, and language — the revilers of their ancient faith, and the bitterest persecutors of their nation. It is simply ridiculous to compare the Jews of Christ's time, near two thousand years ago, dwelling in their ancestral home, the land of their fathers, with the French Canadians of our day, or the Dutch colony at the Cape. It argues either a weak cause, or an entire misconception of the case, to make such a comparison. No such ties ever bound together any other nation of the world as united the Jews. Patriotism is a word too weak to express the feeling with which they clung to their country, to their law, and to their God. While the nations around wallowed in the filthy rites of heathenism, and worshipped gods and goddesses innumerable, they alone remained witnesses to, and worshippers of, the one invisible Jehovah.

They still dwelt in the land promised to their forefathers; they worshipped in that temple on whose altar God had kindled the sacred fire. For them angels, aye God himself, had visited this earth; and their prophets and sages had been inspired of God. The history of their race was bright with a long succession of miracles wrought by Him on their behalf. As the fleece of Gideon was wet, while all the earth around was parched and dry, so had their souls, amidst every vicissitude, been refreshed with dews from heaven. "He gave His law unto Moses, His statutes unto Israel." "Blessed wert thou, O nation beloved of Jehovah!" And they continued to cling, blindly indeed, and erringly, but with a love stronger than death, to the faith and the language of their fathers. "Whosoever hath his seat in the land of Israel, and eateth his common food with cleanness, *and speaks the Holy Tongue*, and recites his phylacteries morning and evening—let him be confident that he shall obtain the life of the world to come." So we read in the Mishna. The captive Jews by the waters of Babylon wept when they remembered Zion. And, forty years after Christ's death, Josephus tells that the Jews, in dying amidst all the horrors of the siege, strove to die with their faces turned towards the Temple. From every quarter of the earth the Jew still turns towards his holy city as he prays; just as Daniel of old did in his chamber at Babylon. Again, they were a holy nation, a peculiar people, dedicated to Jehovah from their birth; and these exclusive privileges, with the singular rites of their religion, begot in them intense pride and isolation. God himself was to them "the God of Abraham, Isaac, and Jacob." The happiness of heaven was spoken of as "Abraham's bosom." It needed a vision from heaven to convince Peter that he had no right to call his fellow men "common" or "unclean;" and he reminds even the proselyte Cornelius that "you know it is an

unlawful thing for a Jew to keep company, or to eat, with one of another nation" (Acts x. 28; xi. 3). And even the Greek Jew, Paul, though, to use his own words, "his bowels had been enlarged" to include the Gentiles, yet sorrowed over his people like a prophet of old. "I could wish that myself were accursed from Christ for my brethren, my kinsmen according to the flesh; who are Israelites, to whom pertaineth the adoption, and the glory, and the covenants (both old and new), and the giving of the law, and the service of God, and the promises; whose are the fathers, and of whom, as concerning the flesh, Christ came" (Rom. ix. 5).

But if such were the feelings of the born Jews, what were those of the Gentiles towards *them*? There was no great love lost among the nations of those days. The idea of a common humanity—of "one God and Father of all"—had not yet dawned on the world. The Greek and the Roman looked upon the swarming races of men around them as outer barbarians, to be outwitted, conquered, and robbed, but for whose religion or ancient story they cared little. Whilst the Jew, dwelling apart in proud isolation, and always rebelling against the yoke, was regarded, often with ferocious hatred, always with peculiar aversion. It was easy to stir up the populace to pillage, or even massacre the Jews, in any Greek or Roman city. The pages of Josephus are full of such ghastly narratives, like our own histories, even, alas! to our times. They are scarcely noticed as a nation in any Greek or Latin author before Cicero; and then it is only in terms of supercilious contempt and aversion. They are stigmatised in the pages of Diodorus Siculus and Tacitus, as having been "a race of loathsome lepers, who were expelled from Egypt;" who "alone, of all nations, held no intercourse with any other nation, and looked upon all men as their enemies." Cicero styles them "a nation born for

slavery." Not one of the contemporary Greek and Roman writers has a good word for them, though they mention the hatred which the Jews bore to their conquerors, and the patriotism with which they clung to each other. Nor surely did we need this evidence to learn that a large population, differing in race, language, and creed, in custom and thought, in all in which man can stand apart from man, from those who govern and coerce them, must bear as little sympathy with their conquerors as a caged beast with its keeper.

Even the history of our own island will afford us many illustrations of the absurdity and falsehood of Dr. Roberts's position. Did not William the Conqueror and his successors do their utmost to stamp out the Saxon name and the Saxon tongue? With how little success on the language of the people, let the version of Wycliffe, or our own authorised version, testify. Again, we have in our midst a truly remarkable race, whose origin is unknown, but who have been bound to us by the most friendly ties for the last six hundred years. I mean the Welsh. Yet it is still their boast that they speak the language in which their bards sung a thousand years ago. And this, not only amid their own mountains and hills, but in our cities. For they are dwellers amongst us, obliged to learn our English tongue—a bi-lingual race, and, therefore, admirable illustrations of Dr. Roberts's idea. But they will not serve his turn. For even to the second and third generations of those born and settled amongst us they intermarry together, and speak amongst themselves only in their own tongue. There are some thirty thousand of them, it is said, settled in Liverpool, all able to speak in English; yet they attend only their own chapels, where the services are conducted in Welsh; and they teach their children to speak at home the tongue of their fathers. My last servants, who were both Welsh, and

had been many years in England, yet left excellent situations in order to live together, and be within reach of a Welsh chapel. They read only Welsh books—the Bible included, for they are a peculiarly religious race—and they always spoke Welsh when together. Our English Established Church, it is well known, has been a complete failure amongst the Welsh, though backed by the power and wealth of their rulers. And when Christmas Evans arose amongst them, like our John Wesley, to preach a living faith, it was in their own native tongue that he stirred their souls.

Again, let us take the Greeks themselves, whose tongue Dr. Roberts supposes to have supplanted the Jewish in its native home. From the period of which he speaks, near two thousand years ago, until our own day, the Greeks have never ceased to speak their native tongue. Successive waves of conquest have passed over their land; they have been trampled down and held captive by conquerors who spoke Arabic, Turkish, and the Latin tongues. Their victors have striven to suppress the Greek, and so far with success, that we know our friend Gladstone, not being able to speak Greek, was fain to address the Ionian assembly in Italian, which many understand. But would any man in his senses infer that during the Greek war of independence their patriotic leader addressed them in Italian, or, worse, in Turkish, the tongue of their hated oppressors! We know that they cling to the Greek tongue with the utmost tenacity; their stranger-king has learned the language, and addresses them habitually in it. Their newspapers and books are printed in it. Yet it is not the speech of Homer and of Plato. It is a modern dialect, bearing the marks indeed of change, but so like the old tongue that the modern Greeks with very little help can read their ancient authors. They are in fact still taught in their boys' schools; and Simonides assured me that many, like

himself, could speak and write with facility both the ancient and modern Greek.

Thus the Greek church has never needed a translation. For near two thousand years it has rested content with the Septuagint—that ancient Greek version of the Old Testament which existed at the time of Christ—and for the New Testament they use the Greek Original. Yet the spoken language of Greece has probably changed far more in two thousand years than did that of the Jews between the days of Hezekiah, when we *know* they spoke Hebrew only, and those of Christ. Surely what is true of the Greeks may be allowed as likely to be true of the Jews!

But the strength of this argument is in fact intensified a hundred-fold when we consider the distinguishing characteristics of the two races. For the Greeks were the most flexible and imitative of all the Western nations. They were the greatest builders, artists, merchants, and colonisers of their time; ready to borrow new ideas from any quarter, shaping them into new forms of beauty and use. Thus they had borrowed the art of writing from the Phœnicians, and their oldest gods from Egypt and Assyria. They revelled in new forms of idol worship. At one time it was tauntingly said “there were more Gods than men in Athens.” And yet Dr. Roberts would have us believe that the tongue of this harlequin race had displaced the Holy Tongue, even in the Holy City; that Christ himself spoke the language of lewd idol-worshippers; and that the sacred books of the Jews, even in the synagogues of Judea, were mere Greek translations of the Hebrew Verity! If such were the case, how came it to pass that Paul found no worshippers of the One Invisible Jehovah in Athens? “The city was wholly given to idolatry”—and he was fain to draw his text from an altar dedicated “to an unknown God.” “Why!” the courteous

missionary of the new Faith might have said, "the Jews, my countrymen, have adopted your splendid language, forgetting their ancient tongue, consecrated though it was by a thousand memories. Instead of the language of David and Solomon, ancient Hebrew sages and heroes, they now speak that of Plato and Aratus. Even our sacred books are now read only in Greek translations. As we have adopted your language, why not in return adopt our faith?" I merely put forward the illustration to show the inherent absurdity of Dr. Roberts's position.

Let us see now what Josephus, the famous Jewish historian, almost a contemporary of our Lord [he was born A. D. 37], says of the Greeks. In his discourse against Apion, he says, "It is no new thing for many captive Jews to be seen often enduring racks and deaths of all kinds, rather than be obliged to say one word against our laws, and the records that contain them; whilst there is not one Greek to be found who would undergo the least harm on that account; no, not if all the writings among them were to be destroyed," &c. Dr. Roberts scarcely mentions Josephus; yet from his voluminous writings we should expect, if the Doctor's position were tenable, abundance of confirmatory evidence; for Josephus was a traitor to the Jewish cause.

Yet the only arguments favourable to his case that he can lay hold of are, (1) that all Josephus' extant writings are in Greek, and (2) that his quotations from Scripture are mostly from the Alexandrine version. Let us hear what Josephus says himself, and we shall see why Dr. Roberts is so chary in quoting from him. In his work *On the Jewish War, or the History of the Capture of Jerusalem*, finished about A. D. 75, he says (Book v. c. 9), "Titus, being sensible that exhortations are often more effectual than arms, persuaded the Jews to surrender the city, now in a manner already taken, and thereby to save themselves, and sent Josephus to

speak to them in their own language, for he imagined that they might yield to one of their own countrymen." Again (Book vi. c. 2), "Titus now ordered his troops to rase the foundations of the tower of Antonia, and prepare an easy ascent for his whole force. On the 17th of Panemus, on which day he heard that the daily sacrifice, as it was styled, had ceased to be offered to God from want of men, and that the people were, in consequence, fearfully disheartened, he put Josephus forward, and directed him to deliver to John the same message as before. Josephus accordingly, standing where he might be heard, not only by John, but by many more, declared to them, *in the Hebrew language*, what Cæsar had given him in charge." Again, in his *Antiquities of the Jews*, against Apion: "As for myself, I have composed a true history of that whole war, and of all the particulars that occurred therein, as having been concerned in all its transactions, for I acted as general of those among us that are called Galileans, as long as it was possible for us to make any opposition. At first I was kept in bonds, but was set at liberty afterwards, and sent to accompany Titus, when he came from Alexandria to the siege of Jerusalem; during which time there was nothing done which escaped my knowledge, for what happened in the Roman camp I saw and wrote down carefully; and what information the deserters brought [out of the city] *I was the only man that understood them*. Afterwards, I got leisure at Rome, and when all my materials were prepared for the work, I made use of some persons *to assist me in learning the Greek tongue*, and by these means I composed the history of the transactions." Again, *Antiquities of the Jews* (Book xx. c. 11): "I am so bold as to say, now I have completed the work, that no other person could so accurately deliver these accounts to the Greeks as is done in these books. For those of my own nation acknowledge that I excel them in the learning of the

Jews. I have also taken much pains to acquire the learning of the Greeks, and understand the elements of the Greek language, *although I have so long accustomed myself to speak our own tongue*, that I cannot pronounce Greek with sufficient exactness, for our nation does not encourage those who learn foreign languages, and so adorn their discourses with the smoothness of their periods. But they give him praise for wisdom who is well acquainted with our laws, and is able to interpret their meaning."

Again, Preface to the *Wars of the Jews*: "I have proposed to myself, for the sake of such as live under the government of the Romans, *to translate those books into the Greek tongue, which I formerly composed in the language of our country*, and sent to the upper barbarians (namely Jews, Arabians, and Syrians). I, Joseph, the son of Matthias, by birth an Hebrew, a priest, who fought against the Romans myself, and was forced to be present at what was done afterwards."

Surely these plain statements ought to settle the question at issue; for they show that the Jews as a nation were unable to speak Greek, knowing only their own tongue, and that even travelled Jews, like Josephus, born in Judea, spoke and wrote it with difficulty, and as a foreign language.

We have seen that when Josephus wrote for Jews he wrote in Hebrew, though these writings have perished. But a vast mass of Hebrew literature, embodying the canon and civil laws of the Jews, has come down to our time. This collection, the Talmud, embodies the decisions of numerous Rabbis, some of whom, as Hillel I., Simon b. Hillel, and Gamaliel I. (the teacher of St. Paul), were contemporaries of Christ. Now, if Greek had been the common language of Judea at the time, they surely would have come to us in Greek. But we have no reason to believe that they ever

existed in Greek, either as the original or a translation. And yet, as embodying those "traditions of the elders" spoken of in the New Testament, they have always been regarded with extreme veneration, and formed, next to the sacred text, the main study of every devout Jew.

Let us glance at the question for a moment as viewed in the light of philology. The two languages, Greek and Hebrew, were as unlike as the two races. I may remind you of the fact, that the modern Science of Language has grouped the languages of Europe and Asia mainly under two heads or families, the Aryan, or Indo-European, of which Sanscrit is the most ancient representative, and the Shemitic, or Syro-Arabian, of which Hebrew furnishes us with the most ancient monuments. These two representative classes of languages differ so entirely, both in grammar and vocabulary, that it is hard to conceive them as having ever been otherwise than separate. They stood as far asunder a thousand years before Christ as they do now. Humboldt (*Cosmos*, vol. 2.) has pointed out that the names given in 2 Chronicles ix. 10, 21, for the foreign merchandise imported by Solomon from Ophir (India), are all Sanscrit. Again: the Shemitic languages (Hebrew, Aramaic, Arabic) were confined for thousands of years to a narrow portion of South-western Asia. During this long period they continued unchanged, so that the Hebrew of Moses is identical with that of Malachi. They also differ very little from each other, less even than many dialects of the same tongue amongst Europeans. Whilst, on the other hand, the Aryan languages rapidly extended over the world, ever changing and forming new tongues.

Now the Greek language was one of the numerous derivatives from this primitive Indian stock, and differs in every thing that constitutes a language from the Hebrew; thus enormously increasing the difficulties of Dr. Roberts's

theory. And not only do these two great families of the human race differ in languages but in everything else.

The Aryan races have always shown a highly practical, adaptive, and expansive genius, intensely unlike the narrow spirit and exclusiveness of the Shemites. Starting from central India, they at length swept over all Europe, leaving everywhere traces of their literature, religions, manners and arts. The Shemitic races planted no colonies in Europe until long after the Christian era. The Aryans readily formed alliances and intermarried with other races. The Shemites have preserved the purity of their race with religious care. A large section of them, the Israelites, sojourned in Egypt, among people of a different race, for several centuries, yet they came forth at last as unmixed as oil that had floated on water. For the last two thousand years they have dwelt dispersed among the Gentiles, and yet they remain the same in feature, the same in faith and worship, they exhibit the same undying repugnance to all except those of their own blood, which characterised the Arab and the Jew when we first recognise their names in history. The Ishmaelite, or Arab, is the same in disposition, manners, language, government, and even in dress, as he was in the days of Moses. And the Arab Sheikh, and the encampment in the desert, furnish models to Doré or Holman Hunt for realising in our own day the life of the Hebrew Patriarchs. The rite of circumcision, itself a curious relic of primeval religion, is still performed by some Jews with a flint knife, just as it was in the "Stone Age." (See Kalisch's note on Exod. iv. 25; Josh. v. 2, margin.) The sacred books used in their synagogues are manuscripts only, written in their ancient tongue, without vowels, on the skins of clean animals, with a carbonaceous ink, with a reed pen, and they are preserved in long rolls, just as in the days of Moses and Ezekiel.

Again, the Aryans have been usually self-governing. They

They had republics, free governments, small and great. possessed ever since the dawn of history a drama, arts, sciences; they were great as architects, sculptors, painters. Always monogamic, yet had they gods many and lords many. They were always polytheists, delighting to image the Deity as embodied in a thousand human forms of power, grandeur or grace, and of both sexes. These ideas have even descended to and alloy the Christianity of our day.*

But as to the Shemites, their governments have always been despotic; they had no drama, no arts, no sciences; they were and are polygamists. On the other hand, they alone, throughout all ages, have worshipped one invisible God, alike the Father and Mother of all. It has been a part of their religion to carve no image, to paint no human likeness. Many a Jew, like R. Akiba, has recited, even in the agonies of a shameful death:—"Hear, O Israel! Jehovah is thy God. Jehovah is One!" It is the first lesson of the Koran, and the beginning of every Moslem prayer. "I testify that there is no Deity but God." Though the Jews, surrounded on all sides by idol-worshippers, bowed down once on a time to a golden calf, and again to a brazen serpent, they neither deified their heroes nor their kings, and the majesty of the deity was never degraded to human forms, which, of all idolatries, we know was by far the subtlest, the most attractive, and the most enchaining. So strict are the followers of Mohammed on this point, that the Rev. Moses Margoliouth tells us (*A Pilgrimage to the Land of my Fathers*, vol. 2.) he was accused in the East, both by Jews and Mohammedans, of having allied himself with idolators, because he had become a convert to Christianity! They drew their deductions from the rites of the Latin and Greek Churches—their votive

* As these sheets are passing through the press a graphic illustration occurs. The newspapers announce that when the Princess Dagmar was admitted to the full communion of the Greek Church, "she kissed the sacred images."

shrines, the pictures and images. It will surely be conceded that the very repugnancy of the two races to each other, as well as the intense difference of language, would of itself be a formidable difficulty in the way of the adoption of Greek by the Palestinian Jews. If Dr. Roberts had been able to tell us that the Jews of Christ's times had so intense an appreciation of the beauties of the Greek tongue, that the wealthier sent their children to Athens to be educated, and that the Greek literature was well known to all classes of the Jews through translations into Hebrew, this would have been something to the point. All this and more might have been said of the Romans. Yet it would be taken for no evidence that the people of Rome, the Latin race, living in the country of their fathers, habitually spoke in Greek! Take another illustration. The French language is familiarly taught and cultivated amongst ourselves. French books abound. All educated persons are well acquainted with French literature. Many English authors have even written works in French. If Dr. Roberts's mode of argument be worth any thing, there would here be abundant evidence to some foreign writer, ages hence, that our Wesleys and Spurgeons must have spoken and taught in French! I have been putting the argument at the strongest, that we might the better see its absurdity. But the fact is that *Dr. Roberts, with all his industry, has not been able to adduce the slightest proof that the Palestinian Jews of Christ's time had any acquaintance whatever with the Greek language.* We have learned from Josephus that the Jews had no care to cultivate foreign tongues. The very languages of the heathen seemed to them defiled. In the last history of the Old Testament is preserved a touching story of Jewish patriotism. Nehemiah left even the court of Artaxerxes, all its honours and luxuries, that he might rebuild the walls of Jerusalem. There, he tells us, "I saw

Jews who had married wives of Ashdod, of Ammon, and of Moab. And their children spoke half in the speech of Ashdod, and could not speak in the Jews' language, but according to the language of each people." (That is, they spoke a mixed dialect.) "And I contended with them, and cursed them, and smote certain of them, and plucked off their hair, and made them swear by God; saying, Ye shall not give your daughters unto their sons, nor take their daughters to your sons, or for yourselves." (Nehemiah xiii. 23.) A very intolerant and extraordinary proceeding, certainly, does this seem, looking at it from our point of view! For the children only spoke a neighbouring dialect closely resembling the mother tongue. Yet to Nehemiah, all this savoured of association with idolators. The holy seed must be purified from foreign taint, at any sacrifice. And grimly does he record with what a vigorous hand he accomplished the reform. "Thus," says he, "I cleansed them from all strangers. Remember me, O my God, for good." Probably these are the last words of the Old Testament. Such is the spirit with which it closes. With the opening scenes of the New Testament, when a greater Jew than Nehemiah appeared four hundred years after to build up the spiritual Jerusalem, can we believe that he spoke to his countrymen, not in Hebrew, nor even in the closely allied Aramæan, but in Greek, the language of a far-off nation that Nehemiah had never heard of?

And the prayer of this patriotic Jew was heard. From that time, even till the coming of the Messiah, the Jews were no more swept away as a nation into captivity; the gates of Zion continued open, her priests sacrificed in their courses according to the law, the solemn feasts and the sabbaths were kept as of old. "And now for a little space grace had been shown from Jehovah their God, in leaving them a

remnant to escape, and giving them a nail in his holy place, that their God might lighten their eyes, and give them a little reviving from the bondage of their fathers." (Ezra ix. 8.)

On the overthrow of the Persian Monarchy, B. C. 333, by Alexander the Great, Palestine came for the first time into contact with and under the dominion of the Greeks. Under the Ptolemies, the successors of Alexander, they were on the whole little disturbed in their worship or their laws. But that execrable tyrant, Antiochus Epiphanes, having been defeated by the Romans in Egypt, A. D. 168, turned upon the defenceless Jews. He entered Jerusalem on the sabbath, and robbed and massacred vast numbers of the people. He seized their women and children for slaves, destroyed the books of the law, and punished with death those who circumcised their children, or kept the sabbath. He stripped the Temple of its treasures, and erected within its holy place an altar to Jupiter Olympius. It was indeed for the Jewish nation a struggle for very existence. But in that dark hour broke forth a splendid outburst of national patriotism. Headed by the Maccabœan family, the Jews succeeded in casting off the Grecian yoke, and preserving inviolate the name and faith of Israel. From that period until the accession of Herod (who himself married one of the race), this illustrious family held sway as priest-kings in Judæa. The Maccabees had early formed an alliance with Rome; and when their family dissensions at length brought Judæa completely under the Roman yoke, that sway was still a mild one; and the Romans neither forced their religion, their language, nor their laws upon the Jews.

From the days of Malachi and Nehemiah to those of Christ, the Hebrew Scriptures are a blank. And the readers of Dr. Roberts's book might infer, from his silence on the subject, that we have no credible information as to the religious life, literature, and language of the Jews during

the interval. But the case is far otherwise. The first care of Ezra was to instruct the people in "their most holy faith." It was their religion alone which could bind them together afresh as a nation. That lost, they were but a horde of slaves escaped from their late masters, whose very name would soon disappear from the earth. To this end he founded the Great Synagogue, as a new centre of religious life among them. The "Sopherim," as their first care, collected the Sacred Writings, and established the canon. They authoritatively expounded the Book of the Law, and regulated, by their decisions and teachings, the whole social and religious life of the Jews. From this beginning arose that vast literature which, at first transmitted orally, was at length, after the destruction of Jerusalem and final dispersion of the Jews, carefully committed to writing by successive Rabbis, and, with ever-increasing amplification, has descended to our times. As Talmud, it is divided into Mishna, or authoritative exposition, and Gemara, or the later supplements of Jerusalem and Babylon. As Midrash, or Exposition, it is divided into Halachah, or authoritative law, and Haggadah, or sayings, teachings, homilies. In these vast collections we find recorded the sayings and doings of the great leaders of Israel during the very lifetime of our Lord. Yet they are entirely written in Shemitic dialects, the older in literary Hebrew, the later portions in Aramaic. Not a single one of the innumerable Rabbinical writings and traditions has come down to us in Greek. Ample materials are thus furnished for judging of the state of national education, manners, and opinion in the days of our Lord. A few extracts will illustrate sufficiently the exclusive spirit of ancient Judaism. "Saith Abraham to God, Didst not thou raise up seventy nations unto Noah? God saith unto him, I will raise up that nation from thee, of whom it shall be written, How great a nation is it!" The

gloss is, "That peculiar people, excelling all the seventy nations; that holy nation, as the holy language excels all the seventy languages." "The holy, blessed God created seventy nations, but he found no pleasure in any of them, save Israel only." "A wise man (that is, one learned in the law of Moses) is to be preferred before a king; for if a wise man die, he hath not left his equal; but if a king die, any Israelite is fit for a kingdom." "The nations of the world are like to dogs." "The people of the earth do not live." The Talmudists speak very ill even of proselytes. After all, they were not of the Jewish stock. "Our Rabbins teach that proselytes and sodomites hinder the coming of the Messiah." "Proselytes are as a scab to Israel." The lawyer who asked Christ, "And who is my neighbour?" might well put the question, for he had been taught—The law "excepts all Gentiles when it saith 'his neighbour.'" Again, "An Israelite killing a stranger doth not die for it by the Sanhedrim, though it saith, 'If any one lift up himself against his neighbour;' he must not be condemned on account of a Gentile, for they are not to be esteemed as neighbours." In other places it is taught that the Jew was not bound to point out to a Gentile the right path, nor to save him from drowning, since their law as to neighbours did not apply, "for such an one is not thy neighbour." What Juvenal said of them was doubtless literally true:

Non monstrare vias eadem nisi sacra colenti:
Quæsitum ad fontem solos deducere verpos.

Into this Jewish world, then, was Christ born. He was the contemporary of three most illustrious teachers and presidents of colleges: Hillel I., his rival Shammai* Simon

* A curious story of these two famous teachers is told in the Babylon Gemara. "A Heathen came to R. Shammai as he was teaching, and offered to become a proselyte, if he might learn the whole law whilst he could stand upon one foot. But Shammai, who was a hot-tempered man, drove him away, as asking an impossibility. Then he went to R. Hillel, and he found him taking a bath. But

ben Hillel, and Gamaliel I., the teacher of Paul. To instruct their children in religion had been enjoined by Moses in the most solemn manner on Jewish parents (Deut. vi. 7-9). They were taught by heart large portions of the Hebrew Scriptures, especially the Commandments, the Shema, or declaration of the unity of God (Deut. vi. 4, 5), with which they commenced every act of devotion, their genealogies, &c., &c. Josephus says expressly that they gave no encouragement to the study of foreign languages or literature, but accounted him only wise who was learned in their law. "Our first care," says he, "is to educate our children." It was enjoined that, at five years, a boy should commence the study of the Hebrew Bible, at ten years the Mishna, at fifteen years the Gemara. Thus, the sum and substance of Jewish education was, after all, their Holy Scriptures, and the expositions of their Rabbis thereon.* Accordingly, our Lord is represented as lingering behind his parents, when a boy of twelve years, forgetting his food, everything, that he might listen to the teachings of the Rabbis, and question them in his turn. Traces of the influence of Rabbinical teaching are to be found in abundance throughout His discourses; as any one may see who will carefully go through the numerous parallel passages to our Lord's teaching, from Rabbinical literature, given by Dr. Lightfoot, in his *Horæ Hebraicæ et Talmudicæ*.

R. Hillel folded a sheet hastily around him, and hearing his question, he answered, 'Yes, my son; whatsoever thou wouldst not have done to thyself, that do not to thy neighbour. This is the whole law.' And he admitted him as a proselyte." Many other sayings of this enlightened Rabbi bear a striking resemblance to the teaching of Christ.

* These hereditary interpreters of the oracles of God have indeed contributed more than we like to acknowledge to Christian exegesis. Many examples might be adduced from St. Paul's Epistles: as, when he says (1 Cor. x. 4) that the Israelites "drank of that spiritual rock that followed them," he refers to a well-known tradition, to be found in the Rabbinical writings, that the rock, from which water miraculously flowed, followed the Israelites through their forty years' journeyings, and gave forth water all the way. (See 2 Cor. xii. 2; Gal. iii. 19. &c.)

Every phrase in the Lord's Prayer was already familiar to the Jews. In the Gemara of Babylon we find the parable of Dives and Lazarus; also the parable of the wise and foolish virgins; in the Jerusalem Gemara the story of the husbandman and the vineyard. These examples might be multiplied indefinitely. And since these parallels to, nay, often sources of his teaching, were certainly delivered in Hebrew only, surely the probabilities are overwhelming against our Lord having uttered them in Greek!

Indeed, many an error besides this of Dr. Roberts might have been prevented by recognising the fact, with all its consequences, that Jesus of Nazareth was a Jew, who began and ended His life on earth within sight of their Holy City, Jerusalem. And throughout the gospels, if we will but look for it, everything is seen in an atmosphere of intense Judaism. During the period of the captivity, the Jews had intermarried with the idolatrous nations around them; so that, as Ezra records, weeping, the holy seed "have mingled themselves with the people of the lands; yea, the hand of the princes and rulers hath been chief in this trespass" (Ezra ix. 2). But the gospel of St. Matthew opens with an extended genealogy of Christ, to demonstrate that the holy seed by which He claimed descent had passed uncontaminated through all. Again, we Gentiles might have supposed that He, who had descended from the glories of highest heaven to the pains and sorrows of earth, would have also renounced all ancestral distinctions, as only so many minute degrees of littleness. But it was not so. He did not disdain to be invoked as "Thou Son of David" (Matt. ix. 27, xv. 22, and elsewhere). He himself urged His claim, on the ground of His royal descent, upon the Pharisees (Matt. xxii. 42, Mark xii. 35), and the people recognised it (Matt. xii. 23). The multitude shouted "Hosanna to the Son of David! Blessed be the King that cometh in the

name of the Lord!" as they conducted Him in triumph into Jerusalem (Matt. xxi. 9, Luke xix. 38). The children shouted it even in the temple, to the great displeasure of the Pharisees (Matt. xxi. 15). Probably it was partly the cause of their conspiring his death (John xi. 48). He re-asserted His regal claim before Pilate (John xviii. 37), and it was written in Hebrew over His cross. Let us consider Him, then, from a Jewish point of view, and remember that the multitude looked up to Him, not only for His miracles and his teaching, but as the heir to a long line of kings, descended, through both parents, from the most illustrious hero, king, and poet of their race! And yet Dr. Roberts would have us believe that this Hebrew of the Hebrews spoke to His countrymen, not in their own language, but in Greek! though the Greeks had been their last and direst persecutors, and whose overthrow by Judas Maccabæus was celebrated by Christ himself and His disciples at the Feast of Dedication (John x. 22).

"In all things it behoved Him to be made like to His brethren." Not the faintest allusion to Greek habits or literature is to be found in all His discourses. His sympathies are represented as thoroughly Jewish. Whilst a teacher amongst us draws his examples from the great of all ages and nations, Christ, in the character of a Jewish teacher, drew His illustrations entirely from the narrow pale of His own little race. In the same spirit Paul's list of worthies (Heb. xi.) are all of the Jewish stock, except one, "Rahab the harlot," and she was a proselyte. With the Jews, as the most isolated of all nations, their common descent from Abraham was ever present to their minds. And Christ uses their formula. "He also is a child of Abraham" expressed His approval of Zaccheus. As, when He represents Father Abraham repudiating Dives, it is the strongest condemnation. When he speaks of the outer Gentile world, it is

to point a rebuke or a warning: "for after these things do the Gentiles seek." "Let him be to thee as the heathen man and the publican." And when He first sent forth the twelve disciples, he commanded, "Go not into the way of the Gentiles, and into any city of the Samaritans enter ye not, but go rather to the lost sheep of the house of Israel." Whilst in Galilee he approached the coasts of Tyre and Sidon. A woman of Canaan entreated Him for her daughter: "Have mercy on me, O Lord! thou Son of David! my daughter is grievously vexed with a devil!" But He answered her not a word. And His disciples came and besought Him, saying, "Send her away, for she crieth after us." Then He answered, and said, "I am not sent, but to the lost sheep of the house of Israel." Then came she, and worshipped, saying, "Lord, help me!" But He answered and said, "It is not meet to take the children's bread, and to cast it to dogs" (Matt. xv. 22). Surely it needs no argument to prove that these words of our Lord were not spoken in Greek, for they breathe the very spirit of Judaism. Note, also, that the disciples did not beg Him to grant the poor woman's request, but to rid them of her. And after all, Jesus did not expressly grant her petition. He speaks as though it had been unwillingly wrested from Him. Our Lord's mission was indeed, as He expressly proclaimed, to the Jews alone. He spoke of His Church as yet to be founded. "On this rock will I build my church." It is not until after the day of Pentecost, and the baptism of three thousand believers, that we read, "and the Lord added to the church daily such as should be saved" (Acts ii. 47). As Moses was not permitted to enter into the promised land, but only to look upon it from afar; so Christ led His followers only to within sight of the promised land, and then passed away, giving the keys wherewith to open the kingdom of heaven to others.

Still the question will naturally arise—If our Lord, as a Palestinian Jew, spoke only the Hebrew tongue, how has it come to pass that nearly all His recorded words have come to our time only in Greek? This is Dr. Roberts's main argument; but it is soon disposed of. The New Testament was not written, like the Old, for the insignificant Jewish nation alone, but for the world, and was therefore naturally compiled in that language which, as Dr. Roberts has well shown, was more universally spoken throughout the civilised world than any other. More than half of it was written by two Greeks, Luke and Paul, the first not even a Jewish proselyte. Besides, there is conclusive evidence that the first gospel, that of St. Matthew, was written in Palestine, and *in the vulgar Hebrew tongue*, as I shall show.

There is nothing more remarkable in the phenomenon than that Josephus should have written Jewish Histories in Greek; for even this highly educated and travelled Jew, as he tells us, was obliged to learn Greek to do so, and to engage persons skilled in the Greek language to assist him. We do not know what assistance the sacred writers employed, and therefore, apart from the question of miraculous aid, no argument can be drawn from the grammatical characteristics of the present Greek text. Again, our oldest MSS., as the *Codex Vaticanus*, are certainly not older than the fourth or fifth century. During the long interval that separates them from the original documents, the Gospels doubtless underwent much editing and correcting. And as the Jewish Christian Church had long since disappeared, the Gospels would get more and more Hellenised, and Hebrew words and idioms preserved in them would be eliminated. A curious proof of this tendency may be seen in the treatment of the word כַּיִפָּא *Kaipha*, or *Cephas*, as it is in our version. The Apostle John, a

Palestinian Jew, tells us (i. 42) that Christ said, "Thou art Simon the son of Jona; thou shalt be called Cephas." Then we have a Greek gloss added, probably by a later hand, "which is by interpretation, A stone (Petros)"; but Mark (iii. 16,) and Luke (vi. 14,) only say that he named the Apostle "Peter." Luke, the Greek, always calls him Peter, yet we are sure that our Lord never called him anything else than "Kaiphas," "Simon," or "Simon bar Jona." Accordingly the Jew Paul *invariably* gives him the Jewish name conferred by Christ. It occurs four times in 1 Corinthians, and six times in the Epistle to the Galatians, but the later Greek MSS., even D of the sixth century, have in every place of the Galatians substituted Πέτρος, Peter. And yet Dr. Roberts lays it down very strongly, in many parts of his book, that we have no right to infer one single word to have been spoken in Hebrew, unless it is given so in the Greek. The parallel passages I have just quoted, show that we cannot infer anything positively merely from the Greek text; since one Apostle gives a Hebrew phrase actually used, whilst two others, recounting the same event, give only the Greek equivalent. Many other similar passages might be adduced. Mark (v. 41), "And he took the damsel by the hand and said unto her, *Talitha cumi*, which is, being interpreted, Damsel, I say unto thee, arise."* Luke (viii. 54) has only, "And he took her by the hand, and called, saying, Maid, arise." Matthew (xxvi. 39), "And he prayed, saying, O my Father." Mark (xiv. 36), "And he said, Abba, Father." Matthew (xxviii. 8), "Wherefore that field was called, The field of blood, unto this day." Acts (i. 18), "That field is called in their proper tongue, Aceldama."

* As this interpretation of the Hebrew words is erroneous, it has been evidently, though found in our oldest MSS., added to the original text by some one ignorant of the Hebrew language.

Matthew (xxviii. 33), "A place called Golgotha." Luke (xxiii. 23), "The place which is called Calvary."

(Acts ix. 4), "He heard a voice saying to him, Saul, Saul, why persecutest thou me?" (Acts xxii. 7), "I heard a voice saying to me, Saul, Saul, why persecutest thou me?" Here we have two separate accounts of the vision on the road to Damascus, in both of which Christ is represented as addressing Paul in Greek. According to Dr. Roberts's principle, we have here two distinct and positive statements, either of which would be ample evidence that our Lord spoke only in the Greek tongue. What shall we then say to Paul's narrative before Agrippa? (Acts xxvi. 14), "I heard a voice speaking to me, and saying, *in the Hebrew tongue*, Saul, Saul, why persecutest thou me?" Notice that, after all, the sentence is given only in Greek, and that the after conversation is reported in Greek, though we have now discovered it was in the Hebrew tongue! Remark also that our Lord addresses Paul by his Jewish name, שְׂאִיל Shaül, given imperfectly by the Greek Σαούλ, for the Apostle was proud of having been named after the most distinguished man in the genealogies of his tribe. (Acts xiii. 21, Romans xi. 1.) As another example, we notice that the two first Gospels record only in Greek the inscription over the Cross. Luke and John, however, expressly state that it was also in Hebrew and Latin. John, the eye-witness, places the Hebrew first of the three, as was natural. Among the last words uttered by our Lord, a whole sentence is recorded in the common Hebrew dialect, the rest in Greek. Thence Dr. Roberts draws the conclusion that these were the only Hebrew words uttered, and that "Jesus of Nazareth, the King of the Jews," even in his dying agonies, uttered alternately Greek and Hebrew sentences! Further, he argues, that because some of the bystanders mistook his

dying cry, *Eli, Eli*, for *Elias*, therefore these “inhabitants of Jerusalem did not understand that form of the national dialect, and must have been dependent for every purpose on their familiarity with the Greek language” (p. 140).

Let us test this notion by fact. On the occasion of St. Paul’s last visit to the Temple, a riotous multitude gathered around, crying out that he had brought Greeks into the Temple, and had defiled their Holy Place! (Acts xxi. 28). And, dragging him forth into the Temple area, they would doubtless have beaten him to death. But Claudias Lysias, the commandant of the garrison, hastened to quell the riot. He rescued Paul, and drew him forth from their murderous hands, yet the multitude still cried out, “Away with him.” Then Paul, turning to the officer, addressed him respectfully in Greek, saying, “May I speak with thee?” Now, if the officer had been in the constant habit of hearing the Jews in Jerusalem speak Greek, he would have taken this as a matter of course. But he was evidently surprised, and exclaimed, “Canst thou speak Greek?” Then the Apostle entered into a particular explanation, telling him that, though a Jew, he was a Greek by birth; and requested permission to address the Jews. This granted, he at once changed his language, and delivered a speech to his brethren after the flesh in the Hebrew tongue. There is no need for laboured comment. This narrative alone, taken in its plain sense, appears to me sufficient to overthrow all Dr. Roberts’s elaborate arguments.

As a further answer to the question, why the sayings of our Lord are preserved to us only in Greek, let us remember that our Lord was born a Jew; lived his brief life in the Holy Land, a Jew; and died there, a Jew. But the case was very different with the Apostles. They were sent forth to all the world, proclaiming the glad tidings, beginning, indeed, at Jerusalem. The church was at first an exclusively

Jewish one, but in a few years became as exclusively Gentile. The children of the kingdom had been left behind in darkness. The Apostles went forth, pursued by the hatred of their countrymen, to convert strangers, with whom, as Jews, they had neither part nor lot; whom their education had taught them to consider unclean, and with whom it had prohibited all communication as a crime. They went forth, counting all other things as dung, that they might win to Christ. They no longer addressed themselves to the Jews, and they naturally chose that language, already, perhaps, not altogether unknown to them, by which they could approach the largest number of readers and hearers. If they wrote in Hebrew, it would reach only a narrow circle, ever growing narrower. They had drawn the sword for a never-ending contest with all they once prized; they could well afford to throw away the scabbard.

Dr. Roberts draws a fresh argument from the use of the Septuagint by the New Testament writers. In three cases out of four, when they quote from the Old Testament, it is in the words of this old Greek version. Some phrases from it occur in the Hymn of the Virgin Mary (Luke i. 46-55). Here is proof positive, says Dr. Roberts, that it was uttered in Greek! A very likely thing, truly! Mary, doubtless, gloried in tracing back her lineage to David, whose memory was infinitely precious to the Jews, as their national hero; like the Cid to Spain. Aye, far more; for, was he not the great poet of their nation, as well as their most illustrious hero and king? Yet even this daughter of David, when inspired by the hope of being the Mother to the long-expected Messiah, who should free them from their enemies, and establish a throne more glorious than that of Solomon, at such a time, of all others, gave vent to her feelings, according to Dr. Roberts, in a Greek song! Her lips uttered only the language of the oppressors of her race,

of idolators and uncircumcised, whom she had been taught to despise from her youth! It is not too much to say that such an idea could never have entered the brain of a Jew, unless all his ancient prejudices had been bleached out of him. The Hymn of Praise of the Jewish Maiden is founded on Hannah's Song of Thankfulness (1 Sam. ii. 1-10), and Leah's, on the birth of Asher (Genesis xxx. 13). It shows, also, a knowledge of the Psalms, Prophetical writings, and Books of Moses. And in transcribing the Hymn, Luke, who was a Greek and a Gentile too, would naturally use the corresponding expressions in the ancient Greek version, with which alone he was familiar.

Dr. Roberts has strangely overlooked the origin of this version. In the time of Christ numerous Jewish colonies existed in different parts of Asia and Egypt. Many of these had remained from the Captivity. Others were planted by the Macedonian kings, in the Greek cities they founded. The Temple at Jerusalem was still the acknowledged centre of Judaism, and the devout Jew everywhere contributed the half-shekel towards its maintenance. The Jews of Babylonia spoke an Aramæan dialect, but great numbers, no doubt, adopted the Greek as their vernacular. This Hellenising spirit had its freest development in the great sea-port of Alexandria, where the Jews had settled in large numbers in the time of Alexander and the early Ptolemies. For their use, then, was prepared, during the third century before Christ, that translation of the Hebrew Scriptures into Alexandrine Greek which is called "the Septuagint." It early supplied the place of the inspired original to the Greek Jews, and afterwards to the Christian Church. But it was regarded from the first by the Jews of Palestine with intense dislike. They even instituted a fast-day to commemorate the origin of so great a calamity! It is said in the Jerusalem Talmud:—"That day was bitter to Israel

even as the day when the golden calf was made. For the Law could not be translated according to all things proper for it." Dr. Roberts would have us believe that Christ Himself read from this Greek version, when He stood up in the Synagogue at Nazareth, because the passage of Scripture is given by Luke (iv. 18) from the Septuagint. But if the Greek translation had thus usurped the Hebrew Verity, even in the synagogues of Judæa, of course the change would be still more complete out of the Holy Land. How comes it, then, that *not a single copy of the Septuagint has been found in a Jewish synagogue*, or has ever been traced as derived from one? The ancient MSS. of it which we possess have all been obtained from Greek monasteries. Again: if, in the Holy Land itself, nineteen hundred years ago, and in a time of peace, this Greek version had taken the place of the Hebrew Scriptures, even in the service of the synagogues, three events must also have occurred. First, a new school of Jewish expositors would have sprung up, using the new version, commenting on it, and writing in Greek. I need scarcely add, no trace of such a school exists.* Second, the Hebrew Scriptures would have utterly disappeared. Instead of which, every synagogue, every library, throughout the world affords us a ready contradiction to Dr. Roberts's theory. Lastly, the traditional interpretation of the Hebrew text must have been lost. The Hebrew, like other Shemitic alphabets, has no true vowel letters; the reading, therefore, and, to some extent, the interpretation, of the sacred text was purely traditional, handed down from age to age. A single break in the tradition, and it would have been lost altogether. But in the sixth or seventh century after Christ the Jews contrived a most complex system of dots and marks, which, superadded to the letters, fixed at once in the most precise manner the pronunciation, the accentua-

* Philo is no exception to the rule. He was a Greek Jew of Alexandria, not a Palestinian Jew.

tion, and division of the sacred text: conclusive proofs of an uninterrupted traditional knowledge of the literary Hebrew, down to the seventh century, when that knowledge was, happily, fixed for ever. Whence, again, are derived the Keris and Kethivs, the Massora, except from an uninterrupted tradition? We owe, indeed, a debt of gratitude to the Jews which we can never repay, for having preserved, through all time, through bitter persecutions, Pagan and Christian, the precious records of God's dealings with their favoured race. Whatever may be justly laid to their charge, that of neglecting their sacred Books, or undervaluing the tongue in which they were written, is not amongst them. They delighted to number even the separate letters, and to find new mysteries in them. In the Jerusalem Gemara, we read:—"The Book of Deuteronomy came, and prostrated itself before God, and said, 'O Lord of the universe, Thou hast written in me Thy law, but a testament defective in some part is defective in all. Behold, Solomon endeavours to root the letter yod (י) out of me (viz., in the text **לֹא יִרְבֶּה נָשִׁים**, 'He shall not multiply wives.' Deut. xvii. 17). The holy, blessed God answered, 'Solomon, and a thousand such as he, shall perish, but the least word shall not perish out of thee.'" And with this agrees the saying of Christ (Matt. v. 18), "Till heaven and earth pass, one jot or one tittle shall in no wise pass from the Law till all be fulfilled." The reference is to the written text of the Law, "one yod" (י), the smallest letter of the square Hebrew alphabet; "or one keraia," the minute strokes, or tagginin, by which very similar looking letters in that alphabet differ from each other. Surely Dr. Roberts had overlooked this passage, which conclusively proves that they were *Hebrew* MSS. of the Law to which Christ referred.

It ought to be remembered, to the eternal credit of the Jews, that they showed the greatest eagerness to take

advantage of the newly-discovered art of printing, in multiplying the sacred text. They printed and published an edition of the entire Hebrew Scriptures as early as A. D. 1488, which was rapidly followed by others. Whilst the Christians, with all their pretended zeal for God's Word, did not publish a single edition of the Greek New Testament before A. D. 1516.

Even the Moslems use to this day only the original Arabic text of the Koran, now twelve hundred years old, avoiding all translations as a sin. Yet in Judæa, two thousand years ago, the Messiah Himself read, even in the Synagogue, a mere translation of the sacred Books, according to Dr. Roberts !

Another living refutation of his theory, and peculiarly appropriate, is furnished us by the Samaritans, a fragment of the Ten Tribes existing even to our own day, who still inhabit the little town at the foot of Mount Gerizim, just as they did in the days when Christ sat by Jacob's well, and (to the astonishment of his disciples) talked to the Samaritan woman. Even this, the smallest sect in the world, intermarry not with their neighbours, practise in all strictness the law of Moses, and preserve with almost idolatrous veneration a most ancient copy of the Law, which they believe to have been written by Amram, the great-grandson of Aaron. I know nothing more touching than Mr. Groves' description of the Synagogue at Nablous on the great day of Atonement.* "As the sun set, the service of that solemn fast-day began. All the little community who were able to endure it were assembled there, men, women, and children. The elder priest began, in a measured chant, to recite the Book of the Law, beginning with the first verse of Genesis, . . . the congregation following; and, in this way, they actually went through the

* *Vacation Tourists and Notes of Travel in 1861*, p. 343.

entire five books of Moses, without once stopping to take refreshment or even to touch water, prostrating themselves at certain solemn places, such as the Ten Commandments, or the Shema, the great declaration of the Unity of God. The lights often burned dimly, but this mattered little, for the two priests, and some also of the people, knew the whole Torah by heart. When, at length, the two grand songs with which Deuteronomy concludes were ended, the priests retired behind the veil, and again came forth, clad in green satin, and produced the two great rolls, in ancient silver cases of much beauty. This was the signal for fresh prostrations and prayers. Then came the great event of the day, nay, of the year—the uncovering of the sacred rolls. Turning towards their ancient holy place on Mount Gerizim, the priests held them up over their heads, in the sight of all the congregation. Every one fell prostrate, and then, ere the rolls were returned to their resting place, they pressed forward to kiss, to touch, or, if none of these were possible, to gaze on the precious treasure.”

Another great difficulty in Dr. Roberts's path is to explain away such phrases as “Jew and Greek,” as of things intensely opposite to each other. They represented to the Palestinian Jew the impassable barrier between the holy race and idolaters. In the New Testament they are often used as if including the whole world. “All they who dwelt in Asia heard the word of the Lord Jesus, both Jews and Greeks” (Acts xix. 10). “I am not ashamed of the Gospel of Christ, for it is the power of God unto salvation, to the Jew first, and also to the Greek” (Rom. i. 16). Such passages can only be explained by recognising—(1) the general diffusion of the Greek language in the surrounding countries, so that Jew + Greek = their world; (2) that Greek and Gentile were synonymous; (3) that Jew and Greek were antagonistic. It would have been strange indeed if it had been otherwise.

The Jews alone possessed a Religion worthy of the name. A single psalm was worth more than all the glories of Greek literature. They were a holy nation, a separate people, a kingdom of priests, dedicated from their birth to the one true God; the solitary light in the midst of heathen darkness. It is impossible to exaggerate the horrible depravity of morals and manners which existed amongst all classes in the Greek and Roman world at the advent of our Lord. Their very gods were represented as monsters of lust and cruelty, whose shrines and temples were scenes of the most disgusting orgies, and profligacy the most shameless. The prostitution of boys and maidens had become a part of religious celebrations. Infanticide, sodomy, the most unnatural vices and crimes were openly practised by all classes. As to the Greeks in particular, Pliny designates them as the inventors of every vice. (See Dollinger—*The Gentile and the Jew in the Courts of the Temple of Christ.*)

The great Jewish Festivals, but especially the Passover (Acts xx. 17), attracted vast numbers of foreign Jews to Jerusalem (Josephus, *Antiquities*, vi. 9, 3). Four hundred and eighty synagogues, it is said, were provided for their accommodation. Those of the Cyrenians, Libertines, Alexandrians, Cilicians, and Asiatics are mentioned (Acts vi. 9.) They were doubtless looked upon with supercilious contempt by the Jews of the Holy Land. If they spoke the holy tongue, it would be with a foreign accent, so hateful to the born Jew. The Babylonian Jews they acknowledged of as pure blood as their own. But the Greek Jews were regarded as an inferior race, impure in their blood; coming from nations most heathenised, from unclean regions, where the very dust of the land defiled. (See Lightfoot's note to John vii. 35, in *Horæ Talmudicæ.*) We can readily see that the early Christian church at Jerusalem, formed out of such materials, would contain, at starting, the elements

for internal division and discord. Thus, it came to pass (Acts vi. 1) that a dispute arose, the Greek Jews (Ἑλληνισταί) complaining to the Apostles that their widows (= poor) were neglected in the daily distribution of alms. To remove any just ground for complaint, the Apostles appointed seven Greek Jews (as appears by their names) to the office of deacon, to represent the Hellenistic party in the church. The "Hebrews" were already represented, the Apostles, for instance, were of this party. A strange, unaccountable occurrence, this, if Greek was the common language of all! To get rid of the plain inference from this narrative, Dr. Roberts contrives a highly artificial and far-fetched explanation. The "Grecians," according to him, were not Greek-born, Greek-speaking Jews, as the plain words would imply, but the liberal party among the Jews; whilst the "Hebrews" were not the native Palestinian Jews, speaking the Hebrew tongue, but the bigoted party, the opposers of all Greek or liberal policy! Now, nothing was so likely to produce the misunderstanding as dissimilarity of language and of country, and the foreign Jews would naturally be sensitive as to any slight or neglect. But what are we to make of the distinctions fancied by Dr. Roberts? Not being able to grasp or comprehend them, I shall leave them in their original obscurity.

Another illustration favourable to his cause he tries to extract from the coinage current in the time of our Lord. This, no doubt, bore Greek (and Latin) inscriptions. But the Jews at that period had no national coinage. Only at one period of their history did they coin money. That was in the days of the Maccabees. Under those patriotic rulers, one of the first signs of their restored nationality was the appearance of a Hebrew coinage. From B.C. 143 to B.C. 37, twenty-eight coins are known to have been struck, all bearing Hebrew inscriptions, such as שקל ישראל, "shekel of Israel,"

ירושלם קדשה, "Jerusalem the Holy." During the last considerable revolt against the Romans, under Eleazar and Simon Giorias, when Jerusalem was in possession of the Jews for but four years, a national coinage, with Hebrew inscriptions, again appeared, struck over Roman coins !*

Once more, if, as Dr. Roberts asserts, the Greek language displaced almost entirely the Hebrew in Palestine, so as to become the common spoken language in the days of our Lord, how comes it to pass that we find no trace of it in the vernacular of the country at the present day? The entire disappearance of a tongue once universally spoken by any great race, especially a Shemitic one, which changes so little from age to age, and dwelling still in the fatherland, would be a phenomenon absolutely unexampled in history. Under the Greek kings, many of the old Shemitic names of places were replaced by Greek ones. But these have long since entirely disappeared, and the old Bible names are heard almost as in the days of yore. Mr. Grove (*Vacation Tourists and Notes of Travels*) and Rev. John Mills (*Three Months' Residence at Nablous*) state that there is only one exception to this in all Palestine. If Arabic has become, since the spread of Islam, the common vernacular of Syria, it must be remembered that we are speaking of a Shemitic tongue, closely allied to the Hebrew and the Aramæan, which it has almost displaced.

Forty years after the death of Christ, Jerusalem was a mass of ruins, and the Jewish race in the Holy Land was nearly swept from the earth. Thenceforth the sorrowful remnant have been wanderers in strange lands, persecuted and down-trodden, their name a bye-word and a reproach. It would have been no wonder if, amid such a struggle for existence, they had lost all trace of nationality, and become assimilated to the nations amongst whom they dwelt. But

* Madden, *History of Jewish Coinage*; London, 1864.

they have clung with a deeper love than ever to the faith and the tongue of their fathers. They have produced, during the last eighteen hundred years, a brilliant succession of writers, each of whom has laid his choicest offering on the altar of his Faith. Commentaries, translations of the Old Testament into Aramaic and Arabic, grammars, lexicons, concordances, and religious poems—these constitute the principal items in the vast succession of Jewish literature. And when, at the revival of learning, Christian scholars began once more to study the sacred originals, they obtained from the Jews the most invaluable and ready assistance in learning to read and understand the Hebrew Scriptures.

Wherever there are large numbers of Jews congregated together, as in Russia and Germany, they restore the colloquial use of Hebrew, and employ it as their familiar tongue. Their letters are written in it; their magazines are printed in it. In the Rev. Moses Margoliouth's work (*A Pilgrimage to the Land of my Fathers*; London, 1850), excellent illustrations of the use of Hebrew by the Jews throughout Europe and Asia will be found on every page. He writes Hebrew letters to his brother, mother, and father, Polish Jews at Warsaw. He took with him the New Testament, in Hebrew, for circulation amongst the Jews everywhere. On board the steamer he found other Jews, on a pilgrimage to their fatherland. He says, "I watched with intense interest the devout performance of morning prayers by my Jewish fellow-passengers. Regardless of the scoffings and mockings of the mob, they put on their large talith and broad phylacteries, and, with eyes turned towards the holy places, they mentally abstracted themselves from all around them, and, for upwards of two hours, held communication, according to the best of their belief, with Israel's God." An aged Jewess, he says, moved him to tears, as she sang the beautiful Hebrew Passover Hymn, full of hopes that the

Messiah would soon appear, and God's temple be rebuilt.—The Jews at Safet (Tiberias) had drawn up a petition to Queen Victoria in the Arabic-Hebrew idiom. He mentions as one of the fundamental principles of the Karaite Jews, that “a believer must know the language and the interpretation of our Law.” At Hebron he held a long controversy with two rabbis, one from India, in the Hebrew language. At Jerusalem, a clever Jewish improvisatore charmed him by reciting, impromptu, a long poem in Hebrew, on a subject given. At a marriage feast, Hebrew songs were sung, and he interested the officiating rabbi much by quoting, in Hebrew, from the New Testament, the parable of the wise and foolish virgins.

Thus, then, we have seen that this language, the very oldest form of human speech of which we have any existing record, is spoken even in our own day as it was at the earliest dawn of written history. And Dr. Roberts's theory is reduced to the naked absurdity that, at a certain period during the last four thousand years, God's ancient people, *just for a short time*, sufficient to suit a theory, ceased to speak the language of their forefathers, linked as it was with all the glories of their race! That this occurred, too, in their own land, in the days of the Messiah, who spoke to His countrymen in the language of enemies, idolators, and aliens!

ON THE ORIGINAL LANGUAGE OF ST. MATTHEW'S GOSPEL.

If, then, it be conceded as proved, that the Jews of Palestine still spoke in our Lord's time the language of their forefathers, that is, Hebrew, our present task will be a very easy one. We know that St. Matthew was a Palestinian Jew. His gospel is placed the first in all the ancient MSS., and in the very ancient Canon of Scripture, published by

Muratori. The oldest Christian writers also with one voice assert that this gospel was the first written, and that it was specially prepared for his own countrymen. It would be strange, indeed, if there were no Jewish gospel amongst the four! There is quite an Eastern contempt for chronology in the Historical books of the New Testament; however, we must suppose some years to have elapsed between the events recorded in the first and those in the eleventh chapters of the Acts of the Apostles. The first presents us with a picture of our Lord after his resurrection, surrounded by his Apostles. Their pleading question, "Lord, wilt Thou not at this time restore the kingdom to Israel?" is full of the old, exclusive Judaism. But he sent them forth to restore and to plant a spiritual Israel, (1) in Jerusalem, (2) next in Judæa, (3) thirdly, in Samaria, (4) lastly, to the utmost parts of the earth (Acts i. 8). Observe the order of progress; and from Acts viii. 1, also xv. 2-4, how long the Apostles clung exclusively to Jerusalem. Even the disciples scattered abroad "preached the word to none but to the Jews only" (Acts xi. 19). In the last glimpse that we obtain of the church at Jerusalem, we are told that the Apostle James, after gladly welcoming Paul, addressed the then veteran soldier for Christ thus:—"Thou seest, brother, how many thousands of Jews there are who believe, and they are all zealous for the Law." Then follows a graphic picture of Jewish exclusiveness (Acts xxi. 20-25). It is evident that the Greek Jew, Paul, was still looked upon with suspicion, even in the Christian church at Jerusalem, as an outsider, a man who had cast in his lot wholly with the Gentiles, and not with the Jews. But during all those years the history and doctrines of Jesus had been proclaimed, and the Apostles had been repeating constantly their witness to His resurrection. Surely, it had already shaped itself into a written gospel, and this would be in the tongue our Lord Himself

spoke ! There is so peculiar a fitness in this, that it is hard to avoid believing it. The various Societies in our day for propagating the Gospel among the Jews have translated the New Testament into the Hebrew tongue that it might find a more ready acceptance with them. Would not the need be far greater for a Hebrew Gospel near two thousand years ago, in their own land, in the first age of the church, and when we know that church was exclusively Jewish ?

We might then conclude, on presumptive evidence only, that the first Gospel was a Hebrew one, and that the present Greek Gospel is a translation from it. Now, if we add that the earliest ecclesiastical writers, who say anything about the subject, all with one voice assert the very same thing, and that one of them, St. Jerome, a peculiarly competent witness, expressly asserts that he had seen and used the Hebrew original, it appears to me that the evidence is absolutely overwhelming. We shall now give a selection from these witnesses.*

1. Papias, bishop of Hierapolis, in Phrygia, about A. D. 118, who was a contemporary of the Apostle John, wrote thus :—*Ματθαῖος μὲν οὖν ἐβραϊδὶ διαλέκτῳ τὰ λόγια συνεγράψατο· ἡρμῆνευσε δ' αὐτὰ ὡς ἡδύνατο ἕκαστος.* (Eusebius, *Hist. Ecc.* iii. 39.)

“Matthew, indeed, wrote the Oracles in the Hebrew dialect, but everyone interpreted them as he was able.” By this he doubtless meant that *he* was not aware of one generally recognised and authoritative Greek translation.

2. Irenæus, bishop of Lyons, died about A. D. 202, was instructed by Polycarp, bishop of Smyrna, who had been himself a disciple of the Apostle John :—*Ὁ μὲν δὲ Ματθαῖος*

* These quotations are extracted from the admirable Essay on the original language of St. Matthew's Gospel, by Dr. S. P. Tregelles, in the *Journal of Sacred Literature*, 1850. The originals are also given by Dean Alford in his Preface to the Gospel.

ἐν τοῖς Ἑβραίοις τῇ ἰδίᾳ διαλέκτῳ αὐτῶν καὶ γραφὴν ἐξήνεγκεν εὐαγγέλιον. (Eusebius, *Hist. Ecc.* v. 8.)

“Matthew accordingly, among the Hebrews, put forth also a scripture (or writing) of the Gospel in their own dialect.”

3. Pantænus was head of the catechetical school, at Alexandria, towards the end of the second century. Eusebius relates thus of him :

Ὡν εἷς γενόμενος καὶ ὁ Πάνταινος, καὶ εἰς Ἰνδοὺς ἐλθεῖν λέγεται· ἔνθα λόγος εὗρεῖν αὐτὸν προφθάσαν τὴν αὐτοῦ παρουσίαν, τὸ κατὰ Ματθαῖον εὐαγγέλιον, παρά τισιν αὐτόθι τὸν Χριστὸν ἐπεγνωκόσιν· οἷς Βαρθολομαῖον τῶν ἀποστόλων ἕνα κηρύξαι. αὐτοῖς τε Ἑβραίων γράμμασι, τὴν τοῦ Ματθαίου καταλεῖψαι γραφὴν ἦν καὶ σώζεσθαι εἰς τὸν δηλούμενον χρόνον. (*Hist. Ecc.* v. 10).

“Of whom Pantænus also was one, and it is said that he went to the Indians. The account is, that he found there the Gospel of Matthew, which was there prior to his arrival, amongst some who had received the knowledge of Christ, to whom Bartholomew, one of the Apostles, had preached, and that he had left behind the scripture of Matthew, in the Hebrew letters themselves; and that it was preserved up to the time in question.”

4. Origen, the most learned Ecclesiastical writer of the third century.—“Ὡς ἐν παραδόσει μαθὼν περὶ τῶν τεσσάρων Εὐαγγελίων ἃ καὶ μόνα ἀναντίρρητά ἐστιν ἐν τῇ ὑπὸ τὸν οὐρανὸν ἐκκλησίᾳ τοῦ θεοῦ· ὅτι πρῶτον μὲν γέγραπται τὸ κατὰ τὸν ποτὲ τελώνην. ὕστερον δὲ ἀπόστολον Ἰησοῦ Χριστοῦ, Ματθαῖον, ἐκδεδωκότα αὐτὸ τοῖς ἀπὸ Ἰουδαϊσμοῦ πιστεύουσι, γράμμασι Ἑβραϊκοῖς συντεταγμένον.” κ.τ.λ. (Quoted by Eusebius, *Hist. Ecc.* vi. 25.)

“As I have learned by tradition concerning the four Gospels, which alone are received without question in the Church of God under heaven; that the first written was that according to Matthew, formerly a publican, but afterwards an apostle of Jesus Christ; and that he gave it forth to those

who had believed from Judaism, composed in Hebrew letters.”

5. These extracts from Greek writings now lost are given by Eusebius, the earliest Church Historian, who lived A.D. 264–340. He writes thus himself :—‘ Ματθαῖος μὲν γὰρ πρότερον Ἑβραίοις κυρύξας, ὡς ἔμελλε καὶ ἐφ’ ἑτέρους ἰέναι, πατρίῳ γλώττῃ γραφῇ παραδούς τὸ κατ’ αὐτὸν εὐαγγέλιον, τὸ λείπον τῇ αὐτοῦ παρουσίᾳ, τοῦτοις ἀφ’ ὧν ἐστέλλετο, διὰ τῆς γραφῆς ἀνεπλήρου.’ (*Hist. Ecc.* iii. 24).

“ Matthew, having previously preached to the Hebrews, when he was about to go also to others, delivered to them the Gospel according to him in the tongue of their fathers, and filled up to those from whom he went, by his writings, the want of his own presence.”

Epiphanius, Athanasius, Cyril of Jerusalem, Gregory of Naziansen and Augustine, all writers of the fourth century, testify to the same effect. Jerome, however, in the same century, supplies us with further details of peculiar interest. He says :—“ Matthæus, qui et Levi, ex publicano apostolus, primus in Judæa propter eos, qui ex circumcisione crediderant, evangelium Christi Hebraicis litteris verbisque composuit, quod quis postea in Græcum transtulerit, non satis certum est. Porro ipsum Hebraicum habetur usque hodie in Cæsariensi bibliothecâ, quam Pamphilus Martyr studiosissime confecit. Mihi quoque à Nazarenis qui in Berœa, urbe Syriæ, hoc volumine utuntur, describendi facultas fuit.”—(*De Viris. Illus.* c. iii.)

“ Matthew, also called Levi, first a publican, then an Apostle, was the first who wrote a Gospel in Judea, in the Hebrew letters and language, for those of the circumcision who had believed. It is not known who afterwards translated it into Greek. Moreover the Hebrew itself is still in the Library at Cæsarea, which Pamphilus the Martyr collected with great care. I too was permitted by the Nazarenes

of Berœa, a city of Syria, who use this volume, to take a copy."

In several other places of his writings, this most learned of the Latin fathers repeats the same testimony. Many more extracts from the early Greek and Latin fathers might have been given, but, as they are all unanimous, it seems useless. As Dr. Tregelles says, it was as much a point of common belief in the first ages that St. Matthew wrote in Hebrew, as that he wrote a gospel at all. We gladly receive their testimony as to the one fact, why should we reject it as to the other? It adds much also to the strength of their evidence, that their own prepossessions would be all in favour of a Greek original. No wonder Dr. Roberts admits (*Op. cit.* p. 327), "At first I felt almost compelled, by the force of evidence, to adopt the conclusion that St. Matthew wrote in Hebrew only." He might have left the reputation of this scanty fragment of a literature to the first Christian church. Why it was not more extensive may readily be imagined. The church for which it was written had but a brief existence, and then disappeared altogether. The Hebrew-speaking Jews had the opportunity of continual reference to the personal testimony of the Apostles, but the Greek-speaking Jews were only casual visitors at Jerusalem, and needed the written word to take back with them into far distant lands, or to be sent to them there. The entire disappearance of the Hebrew original is readily accounted for: originally written for the Hebrew Christian church, on the dissolution of that church, it became a mere literary curiosity, and a Greek translation (made doubtless in apostolic times by some Jewish christian, as is evident by the numerous Hebraisms in the Greek text), rapidly supplanted it. We have an exact parallel in the 1 Maccabees, which has come down to our time only in Greek, though it was written in Hebrew about 102 B.C. The Hebrew original still existed in St. Jerome's time, and his

notice is the last trace we have of its existence. Again, the "*Wars of the Jews*" has come down to us in a Greek text, as old as the first century. But we know from Josephus's own words that he originally wrote the work in Hebrew.*

Though the direct evidence, then, is all one way, and the objections are of a kind that disappear as soon as they are looked fairly in the face, yet it must be acknowledged that of late years, especially in this country, it has been the fashion to maintain the present Greek text of St. Matthew's Gospel as that written by the Apostle himself, and to discredit altogether the idea of a Hebrew original. This opinion, first broached by Erasmus, has found great favour amongst Protestants, especially those who hold the Verbal Inspiration theory of Scripture. They cannot conceive of a translation as inspired. But they conveniently forget that not one in ten thousand can read fluently the original texts of holy scripture; the vast majority must take their notions of the Bible from translations alone. Besides, there are many translations in the bible itself, such as Luke's Greek version of St. Paul's Hebrew speech to the Jews, Acts xxii. 1-21. What evidence have we that this Greek translation is inspired, more than we have for the divine authority of the present Greek text of St. Matthew's Gospel? We receive both, because they were received by the universal church, in all ages, as authentic scripture. But the very same authorities, as with one voice, assert that St. Matthew wrote his gospel in the Hebrew tongue. What right have we to receive their testimony on one point, and to reject it on another?

Perceiving, then, that all ancient evidence is against this

* A curious parallel case occurs in English literature. Every one has read Beckford's famous story of *Vathek*. I have seen many editions of it, but they were all in English. The English text bears no marks of being a translation, and it is generally received as the original. It was also written by an Englishman. Yet we know from Beckford's own words that he wrote it in French! and that he never knew who was the clever translator of a work, still highly popular in the English version, whilst the original has long since been forgotten.

modern notion, and yet sympathising with it, Dr. Roberts comes to the rescue with a theory, which, if it could be sustained, would certainly be a great accession of forces. For he would have us believe that the Palestinian Jews of Christ's time were a bilingual race. This, to begin with, is a clumsy and unnatural expedient. I take it as incontrovertible, that you cannot equally stir a man in two languages. If you wish to reach his heart by the directest channel, it must be through the accents that he has heard at his mother's knee, the speech of childhood and of youth. Dr. Roberts is unwillingly forced to admit that they spoke Hebrew, for the New Testament expressly tells us so, but he contends that they generally used Greek, as being their favourite tongue! He quietly ignores the abundant evidence contained in the New Testament, of the intense antagonism between the native Hebrew race and the Greeks. (See Acts xxi. 28, &c.) There was every element of nationality to embitter the conflict. The Greeks were aliens in blood, in religion and language. It was a common proverb, "Cursed is he that keepeth swine! cursed is he that teacheth his son the wisdom of the Greeks!" And they extended this dislike even to the Greek-speaking Jews, like Paul, who were, under God, the true planters of Christianity in the world (Gal. ii. 7).

In conclusion, I have attempted to discuss, within the limits of a short paper, the arguments of a bulky volume. If I have in any point failed, it has been for want of space, not of materials. Dr. Roberts, on the contrary, has doomed himself to a task harder than that of the Israelites in Egypt. They were condemned to make bricks without straw; he has attempted to build up a durable structure without bricks at all!

SEVENTH ORDINARY MEETING.

ROYAL INSTITUTION, January 22nd, 1866.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The minutes of the last meeting were read and signed.

The following gentlemen were duly elected Ordinary Members:—Messrs. W. W. Raffles, W. St. Claire, and L. S. Cohen.

The CHAIRMAN said it was only proper he should allude to the loss which the world of art had sustained in the then reported death of our townsman, Mr. John Gibson, R.A., who had done much to render Liverpool famous as the nursery of his great genius with respect to the art of sculpture. Mr. Gibson was not born in Liverpool, but he was removed here at a very early age. He was apprenticed to a cabinet-maker in Ranelagh-street. In one of the newspaper accounts there was, the Chairman said, a slight disarrangement of the sequence of Gibson's history. It was owing to Roscoe that he was taken into the studio of Mr. Franceys, whose principal business was the manufacture of chimney-pieces and monuments, and who, finding Gibson's great talents, purchased his articles from his previous employer, and gave him facilities for study. At that time he executed some very beautiful bas-reliefs. Through the influence of Mr. Roscoe, a fund was formed for the purpose of enabling Mr. Gibson to proceed, in the year 1817, to Rome, where he remained, except when on occasional visits to this country. The Chairman referred to an interesting visit he paid about two years since to Mr. Gibson at Rome, and remarked that Mr. Gibson was a man whose memory they might delight to honour, from the fact that his genius was associated with this

town. He trusted that Mr. Gibson's works would not be dispersed, and expressed a desire that some of them might be purchased, for his association with the town.

Mr. ALFRED HIGGINSON called attention to the death of an honorary Member of the Society, the late Sir William R. Hamilton, Astronomer Royal of Ireland.

Mr. MOTT drew attention to some observations in Ferguson's last work on Architecture, with regard to the connection between Ethnology and that art.

Mr. T. J. MOORE exhibited a series of illustrations of Silk Moths and their products, lately presented to the Derby Museum by Mr. F. Moore.

Mr. MOORE also announced that a very fine collection of Dodo and other bones, from the Mauritius, had lately been presented to the Derby Museum, by Mr. James P. Higginson, on behalf of his nephew, Mr. Harry P. Higginson, resident engineer of railway works in that island. An early opportunity would be taken of bringing these most remarkable and interesting specimens before the notice of the Society.

Mr. ALFRED HIGGINSON said it occurred to him to mention that the crusts which form on the arm of the infant, after successful vaccination, contained the *virus vaccinum*, in a state capable of reproduction and of transmission from place to place.

It was remarked by Mr. Nisbet that the suggestion referred to by Mr. Higginson was practised in America.

Mr. MARPLES then read extracts from an article by Mr. Theodore Küster, describing in detail the printing office of A. Mame and Co., at Tours, from which the beautiful volumes of the Bible and Dante, with woodcut embellishments by Gustave Doré, have recently issued.

EIGHTH ORDINARY MEETING.

ROYAL INSTITUTION, February 5th, 1866.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The Minutes of the last meeting were read and signed.

Mr REDISH drew attention to the statement which had appeared in the papers, to the effect that many of the works of the late Mr. John Gibson, R.A., were in the possession of Liverpool merchants, and suggested that a local exhibition of such works should take place in the town.

The PRESIDENT exhibited the catalogue of the Melbourne Free Public Library, and made some observations on the care with which it had been got up, both in respect to the arrangement of the book and the excellent style of the printing and illustrations, which reflected great credit on the local press. Some further remarks on the same subject were made by the Rev. H. H. Higgins and Mr. Mott.

Mr. HIGGINSON remarked that explosions in coal mines were generally found to prevail when the barometer stood at a low point, and that several such had recently occurred.

Dr. NEVINS explained that this was a well-known fact, and that it was usual to adopt the needful precautions in mines when such warning was afforded.

The paper for the evening was by Dr. Inman, on "The Antiquity of Certain Christian and other Names."

An abstract of this paper follows the report of the next meeting.

NINTH ORDINARY MEETING.

ROYAL INSTITUTION, February 19th, 1866.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The Minutes of the last meeting were read and signed.

Dr. COLLINGWOOD stated that, owing to his appointment as Scientific Naturalist to the proposed Government expedition to the China seas, he was compelled to tender his resignation of the office of Honorary Secretary, which he had filled for the last five years. It was thereupon moved by the Rev. H. H. Higgins, seconded by the Rev. Dr. Ginsburg, and unanimously resolved:—

“That this Society expresses its gratification at the honourable recognition of Dr. Collingwood’s high attainments and character, manifested by his appointment as Scientific Naturalist to a Government expedition to the China seas; and places on record its sense of the very valuable services rendered by him in the onerous office of Honorary Secretary, as well as its regret at the loss sustained by his removal.”

It was further resolved that the above resolution be engrossed, and forwarded to Dr. Collingwood.

Mr. REDISH was desired to act as Secretary *ad interim*, to which he consented.

Mr. PICTON stated that as he wished to make some observations on the paper for the evening, he would leave the chair, which was accordingly taken by the Rev. Dr. Ginsburg, V.P.

The second part of the following paper was then read:—

ON THE ANTIQUITY OF CERTAIN CHRISTIAN AND OTHER NAMES.*

BY THOMAS INMAN, M. D.

THE leading idea in the following Essay is, that the names of those who are held in reverence are more persistent than any other words; and that their persistency is such, that it can be traced throughout ages and over a vast extent of country. Still further, we believe that, in the study of such names, attention must be paid to sound rather than to spelling; for the phonetic value of letters changes, and with that a word is spelled differently at distant periods, its pronunciation remaining the same. We consider that proper names have not been perpetually fabricated, but that the new are copied to a great extent from the old. There have been periods in all time in which cognomens have been originated, and many, when so fabricated, have been copied.

In our own country we know that our language has changed so completely, that King Alfred, if he were to return, could not hold converse with us—though his name survives, and is likely to persist, wherever the English penetrate.

In like manner, the English, French, Germans, Italians, and others are unable to talk in Hebrew or in Greek, yet the name of Jesus is familiar to us all. Yet, in the time of our Saviour, the name He bore was already ancient, for it was the name of Joshua; and, having traced it thus far, it is probable that we might be able to trace it still farther back. The names which are most revered are those borne by the

* The Original Essays being too long for insertion in the *Transactions*, the following abstract is substituted in their place.

invisible being whom we know as the Creator, Almighty, and such like names. It is therefore probable that religious or sacred names will be more persistent than secular ones. Practically it is so; but religious wars, like ordinary contests, often end in the annihilation of one party, and thus the links of a chain, from the present to the past, may be wanting, or may be only recognisable in colonies which preserved the ancient faith, when that of the mother country became extinct.

The study of names, embraces the study of ancient creeds, of sacred words, of old rituals, symbols, and of modern names, creeds, practices, and emblems. Into this part of the subject, however, the author has not entered farther than was necessary.

Accident threw across my path, many years ago, a book, written in the French language by a very learned author, respecting certain forms of worship existing in ancient times, whose remains were found in one mild form or another in Ireland and England on the west, in more offensive forms in Italy, and in still ruder forms in India on the east. The perusal of this work led to farther inquiry; but the results did not give anything sufficiently definite to be laid before the Society. More recently, my attention has again been brought to the subject, and a new impulse given to my investigations; while, at the same time, they have assumed a distinct form, and point to a conclusion which is, I think, so consonant with the deductions drawn by abler heads than mine from entirely different trains of thought, that I may fairly lay it before you.

In studying the past, I think we may fairly consider the present; for, as the wise man says, "the thing that hath been, it is that which shall be; and that which is done, is that which shall be done," &c.

What do we in the present day when we select a name for our children?

1. We call him after some honoured parent, relative, or friend—for ordinary folks rarely coin a new name; or,

2. After some popular king, prince, hero, or orator; or,

3. After a favourite saint; or,

4. We give some name intended to show our feelings, such as Theodore, Dieudonné, &c.—Gift of God, God-given.

5. Generally we carefully avoid giving such names as Snub-nose, Well-beloved, God Shield Us; although we know from history that the Puritans did really adopt such names as "Praise God," "In the Lord Put I my Trust," &c.

6. We most carefully avoid calling our children after any of the names applied to the devil, though there are such surnames as Manteuffel and Mandeville; but we by no means object to calling by some nasty nickname those whom we dislike.

7. We see that when a people migrate, whether in whole or in part, they carry with them to their new abode the names and religions which they were familiar with in the old; and Boston, Troy, New York, Santa Cruz, Trinidad, Sydney, Perth, and Melbourne tell in America and Australia of the names of towns, faiths, and persons in England and Spain.

8. We see that different nations, starting apparently from a common point, have greatly modified certain names, both as regards spelling and pronunciation; *e. g.*, we have Joan, Jeanne, Jane, Jennet, Jannet, and Janet in countries very close to each other; and it is difficult almost to believe how, Evan in Wales, Ivan in Russia, Yan in Poland, and John in England could have a common origin.

Without proceeding further in this direction, however, I will turn your attention to the question, whether these ideas alone were always regnant. If we turn to ancient writers, we

find names were frequently assumed; *e. g.*, Augustus, a name which was subsequently adopted by succeeding Emperors of Rome. Sometimes they were prescribed beforehand, by one who assumed a right to direct; and, when writing mythical histories, there is no doubt that mystic names were given to heroes and kings, which were subsequently copied by their presumed successors, without any definite idea that there was any mythical interpretation of them.

Ere I proceed, I must call your attention to the varieties of pronunciation and spelling which exist around us, and which make our appreciation of similar sounds very precarious.

I shall content myself with two or three prominent ones. We write murder, thunder, Tuscany, father, and pronounce accordingly; but the Irish, the German, the Italian, and the Latin would pronounce those words, and write them too, as murthur, donder, Thosecâno, pater, or vater, or vader.

Again: we write Jerusalem, Jack, James, John, and pronounce the J as if it were Dj, or G, as in George; whereas, the proper pronunciation is as if the J was Y.

There is no doubt that the rock on which the antiquary is most likely to split is the true value of similarity of sounds, sense, and letters.

Before entering upon my subject, I must acknowledge my obligation to Dr. Colenso's translation of Dr. Oort's book on the worship of Baal in Israel. Also to a most remarkable work called *Anacalypsis*, by the late Godfrey Higgins, a book only privately printed, and very difficult to obtain; and, to a small extent, to Miss Young, the author of an interesting dictionary of Christian names; and to the *Journal of the Asiatic Society*, *Rawlinson's Herodotus*, &c. But, though indebted to all, I must take all the responsibility of the Essay upon myself.

I propose to consider, firstly, the origin of the word John, and its analogue, Jack—whence come they? Taking Miss Young's authority, we find that the word is Jehan in Belgium, Jovan or Ivan in Slavonic, Juan in Spain, Joas in Portuguese, Jonas in Lithuania, Giovanni in Italy, Johannes in German, Ivan in Russia, and Jofa in Lapp, and, we may add, Evan in Welsh. These names are more or less modern; we therefore turn to the past, and find Javan as a son of Japhet, and in the Septuagint we find that he has a brother *Elisa*, translated with us *Elishah*, while in more recent times we have Shah *Jehan*, far away in India, and *Java*, not far from it; we have *Jehenabad* in Persia, again in Affghanistan, and *Jehangirah* in Bengal. The name of *Jansi* was familiar to us during the late mutiny, and we find a *Janshansree* in China.

It is clear, then, that the name, in one form or another, is not only widely spread, but of very ancient date; and we note that in all nations it is formed of two sounds, the one *yah*, the other *an* or *on*.

I propose to analyse its meaning, chiefly with reference to its association with *Jack*, and through its Greek form, *Joannes*.

We may divide this word in many ways, *e. g.*, *Jo-annes*, *J-oannes*, *Jao-annes*; we may compare it with *Johanna*, *Jonas*, *Jehonadab*, and again with *Susanna*, *Annas*, &c.

The result is that we see in the word a junction of two names both of sacred or mystic meaning, *Jah*, *Jo*, or *Jao*, and *Anna*.

The one is of male, the latter of female significance; the word is, so to speak, androgynous, and tells of an ancient faith which may be described thus:—The world above, around, and below us was made by an almighty being, whose attributes the human mind could not grasp, and to whom no

substantive name could be given, for a substantive name must imply a person. He was therefore spoken of with reverence, under names implying self-existence, as, *I Am, He Is, Supreme Wisdom, &c.*

No man could by searching find Him out, but the devout might hope to attain to some knowledge of him by studying His works.

Of all His works none were more glorious than the sun, the moon, the stars, and the wandering planets: to study their courses was to study the Almighty who created them. As the knowledge of astronomy increased, the system of thought developed, and the sun in its various phases was spoken of under different names; *e.g.*, Creator in Spring, Preserver in Autumn, when it ripened fruit, Destroyer in Winter, when its face was hidden by storms. It was natural that the Almighty would be invoked under his name of Destroyer against enemies—under his name Creator or Preserver by those who wished for offspring or success in life.

With various names came the idea of person, and a person, to human ideas, must have a sex. Observation told men that the male was a finer animal than the female; but that both were necessary to reproduction. The sun, then, darting his beams upon the earth, was said to be the male, and the earth the female. That idea would do for mundane things, but not for the celestial worlds. The fiction then was raised that the Almighty was both male and female. As it was blasphemy to think that carnal connection could occur, the female idea was therefore associated with Virginity.

The period of the birth of each year was placed at the vernal equinox. Observation showed that the sun was at one time in Taurus; that he went subsequently into Aries, and after that into Pisces at the period of this equinox, and three systems of religious rites were founded upon this knowledge.

When the sun passed from one sign to another, the belief was entertained, that the Almighty allowed a portion of Himself to become incarnate, and to appear on earth as man. Brahm, Buddah, and Christna were considered as such, and mystic fictions were made as to their human birth, into which I forbear to enter at present.*

When once the study of the sun became associated with the study of the Almighty, every attribute of the sun,—fire, light, heat, height, destruction, storms, &c.,—became objects of reverence.

But the purest form of this faith degenerated, under the influence of human passions, indolence, and ignorance, into forms of worships horrible in the extreme. This degeneration was excessive amongst some nations, but less serious amongst others. Yet, throughout all known people, there ran to a very late period a system of rites, or ceremonies, or names, which told of the origin of their worship.

That you may not consider this sketch altogether fanciful, let me recal to your mind the Biblical history of Abraham, and how he found, on his coming to Canaan, kings and princes to whom he gave reverence, friendship and esteem, which he could not have done had they been idolators.

I must also call your attention to the reverence with which we use the name of *God* when we wish to speak of the Almighty, and how frequently we employ in its place such words as the Creator, the Omniscient, the Deity, &c. The ancients seem to have had the same idea, and to have spoken of “the Existent” as “my Lord,” “the King,” “the High One,” “the Father,” or, again, by periphrasis, as “the Sun,†” “the Light,” “the Fire,” “the Healer.” In direct

* It will be in the recollection of many of my hearers that Alexander, Augustus, and Pythagoras all claimed to be of divine descent; and the name of *Barjesus* (the son of Jesus, or Esa-Christna, the Saviour), the sorcerer, suggests a like idea.

† In the Chaldean mythology Asshur, the chief God, is *Il, Eli, Elos, Ilus, Helios*.

proportion to the reverence or admiration felt for this Being, would be the propensity to call mythic kings, founders of a dynasty, by some combination of His name; and a careful priesthood would continue to keep such names in reverence by bestowing similar combinations on rulers. An inquiry, therefore, into the names used in combination with each other will enable us to ascertain those appellations which were considered as divine or mystic; and a comparison of those names with similar ones in distant countries will enable us to ascertain the extent of area over which those names were known.

I do not attempt to go over the ground already passed over in Dr. Colenso's very interesting translation, though I must, perforce, present some of his facts to my hearers when they chime in with those obtained from other sources.

Jao and *Annes* are the component parts of John's name. An old oracle of the Clarian Apollo says that the names of *Zeus*, *Aides*, *Helios*, *Dionysus*, and *Jao* represent the sun at different seasons. Macrobius tells us of another oracle of Apollo, saying that *Jao* is the greatest of all the Gods; and, he adds, that *Jao* is the sun.*

Having got thus far, we turn to the sacred writings, and find that *John* is the *Helios* foretold by Malachi. Malachi spoke of *Helios* the Tishbite—whose name with us is translated *Elijah*—(*Eli* was a name of the Chaldæan Asshur, the first of the Trinity; *Hea* was the second). We have, therefore, a direct conjunction between *John*, *Helios*, and *Jah*. But another name for *Helios* was *Dionysus*. If, again, we consider that *Bacchus* was identical with *Dionysus*, and that one of his other cognomens was *Jacchus*, we get

* In making an analysis of Hebrew names, it is very remarkable that the use of *Jah* in composition comes in after David's sojourn with the Phœnicians. It is equally noticeable that it entered into the names of their kings, e.g., *Maniah* was king of Ukka, *Zedekiah* of Ascalon, *Padiak* of Ekron, at the time when *Hezekiah* was king of Jerusalem.

Jack, the equivalent for *John*; also *Jacques*, the brother of *John*, whose Greek name, *Jacob*, carries us back as far as the days of the Patriarch.

Interesting as this little bit of philology is, we increase that interest when we begin to trace some similar words, such as *Jonas*, *Ionia* — *Jona*.* We read in Mr. Higgin's *Celtic Druids* that *Ion* is Welsh for *Baal*, *Lord*, *God*, or *Isis*, and that *Iauna*, *Ion*, *Jona*, *Iain*, *Ianicoa*, *Iaungoica* is the same as *God* in Basque; that *Ion* is the sun in Scandinavia; that the Trojans called the sun *Jona*; that *Jawnah* is the sun in Persia; that *Janus* was the sun in Etruria and Rome. *Ion*, *Ionia*, and *Ionion* were connected with the *dove* as an emblem; and the *Dove* and *Ionah*, or *Yonah*, was the sacred sign of the Chaldæan Asshur, and one of the prescribed offerings of the Hebrews.

The word *Yoni* is still in use in India, and it represents the female organ known as the *Vulva*. The Yonians adopted the idea of the feminine nature of the Creator; a dove was their emblem in Assyria. The visible sign before which they did homage was a representation of the *Vulva*, or female external organ, called by Layard and others *the sacred grove*.† The image is sufficiently like the thing signified to remind a devotee of its nature and meaning, and sufficiently unlike not to scandalise the uninitiated. I must also note that there are bars, or rings, across the sign, and that the officiating priests present to it a pine cone, of shape so similar to a testicle, and which they have apparently taken from a bag,—an emblem for the “scrotum,”—that few can doubt the mystic notion. And here, too, I must also note, that the sign which *Isis* carries in her hand is also a mystic

* The “*Jannes*” who withstood Moses is the same as *Joannes*, with the exception of the *Omega*.

† Some sects in India and in Palestine still pay homage on certain sacred festivals to the thing signified, kneeling as devoutly before it as would any Western devotee at the shrine of a saint.

representation of the female organ, which is ornamented externally with the sign of virility, and barred across by wire, so bent down as not readily to be removed; clearly signifying that though she is the mother of all things, she is still the celestial virgin conceiving without access to the male.

It must now be noted, that the name of John was dictated by an angel before his birth; we are, therefore, prepared for the belief that his mother would bear some name of mystic significance. She was called Elizabeth.

The word Elizabeth is compounded of *El*, *issa*, and *beth*. The last syllable simply means the house or residence of, and is a word of Chaldee origin;* the full word signifies the dwelling-place of *Elissa* or *Eliza*. The last cognomen is still current with us as a short form of the first. Who was *El-issa*? We have already met with the name as belonging to a man.

Elissa appears to have been one of the names of *Beltis*, *Myllitta*, *Alitta*, or *Alissa*, the supreme mother; one of whose representations was what we now call "a Virgin and Child," which is as common in some countries to-day as its ancestor was in Mesopotamia. Her name seems to be compounded of *El*, a god, not the God, and *issa*.

Al, *El*, *Il*,† *Ilos*, *Helos*, *Helios*, are some of the names of *Asshur*, and, as sacred words, are to be met with in composition in a vast number of places; e. g., *Allah* = *Al-jah*, or *All-Hea*, in Arabia; as *Alanna*, *Elam*, *Alise*, *Ellon*, *Elan*, we find it from India to England.

We see this syllable in combination with *Is*, *Ish*, *Isha*, and allied forms, in the names *Ishmael*, *Ismael*.‡ *Elisha*

* It is interesting to find that such names as *Bethsaida*, *Bethany*, *Bethabarah* existed in Chaldæa, even before the time of Abraham.

† The plural of *Al* or *El* was *im*, or *in*; whence came *Elohim*, or *Aleim*, of the Hebrews, and *Ilin* or *Ellin* of the Assyrians.

‡ *Ismi Dagon* was a Chaldæan king four centuries before Abram; his name yet survives, in *Ismiel*, the name of the Patriarch's firstborn.

is a grandson of Japhet, and a son of Javan or John, and we are all familiar with the name of Israel's great prophet, Elisha. We find Elizabeth (as Elisheba is rendered by the seventy) as the wife of Aaron; and so the mother of a line of priests. The ordinary explanation of the Hebrew form of the word is "The oath of God," which seems to me absurd; for to talk of the Queen of *Sheba* as the "*swearing ruler*" would be outrageous. I find that *Shabie*, *Shaba*, or *Shabaha* is Semitic for *abundance*, a word sometimes applied to the stars. This would give us, as a meaning for Elisheba, "The God of abundance;" or, if we adopt the Hebrew language alone, and for '*Sheba*' read seven, we get "God is seven." We have *Elkanah* (the khan* or ruler, El) as the husband of Anna and Peninna, and father of Samuel; and the word *Elijah*, an union showing fraternity between Jah and Eli.

Leaving the sacred writings for the profane, we find that one of the names of the mythic *Dido*, the Tyrian or *Phœnician*† founder of Carthage, was Elissa, and that she had a sister called Anna—her name is perpetuated in Els in Austria and Nassau, Elsa and Elsau in Italy and Switzerland, Else in Hanover, Elso in Denmark, and Elz and Elze in Baden and other parts of Germany.

Ere we proceed to inquire into the meaning of Is, or Iza,

* This word seems to be of Scythic origin. Col. Rawlinson has demonstrated the existence of an extensive Scythic empire over Mesopotamia, Central and Southern and Western Asia, and Egypt prior to the oldest Chaldean monarchy. *Khan* is still the name given to a Tatar ruler, and *Am* (see, *passim*) is still a Tatar god. The word *Khan* entered into composition in Assyrian, Hebrew, and Phœnician names, e. g., *Khananiah*, Assyrian—*Khanunw*, king of Gaza, *Chenaanah*, Israelite, *Canaan* or *Cainan*. So far as I am able to understand, the word involves the idea of "possessing all things."

† I may state that the result of my reading, up to the present time, has led me to the belief that the Chaldeans, Hebrews, and Phœnicians had a common language, a common mythology, and a common physiognomy; but, like all nations living apart, they underwent changes in language, &c., just as the word *Yankee* can scarcely now be recognised as a descendant of English.

or Issa, let us pause for a minute, and consider our own word *hell* (*helios*), *helo*, *hellah*, *hole*, and the ideas connected with it. Its Greek form was *hades* or *haides*. Both are names of the *sun*, both are connected with the destroying power of that luminary, or to his absence or angry mood in the stormy winter. The idea of an angry sun is met with in the *Iliad*; and that of a separate place of judgment and punishment seems to be of equal if not greater antiquity, the idea being associated with the sun's destroying power, or the place he occupied during the night—Erebus.

Returning from this digression, we find the word *Is* of most extended use. We meet with it duplicated in *Isis*, the celebrated goddess of Egypt, Syria, Greece, Rome, Italy, &c., and we meet with the same name in the river on which is Oxford. In Chaldæa and Assyria we have *Ish-tar*, or *Ri* the offspring of *Ish*, equivalent to *Rhea*; we have also *Beltis*, the supreme goddess.

We find it in *Isaac* (brother of *Is*) and *Issachar*. We meet with *Isaca* in Ancient Britian, *Isadici* in the Caucasus and in Ireland, *Issa* in Ancient Greece, *Issoria* (*Is-suria*), (*Is-çire*) is an Assyrian goddess; we had *Issus*, famed by Alexander's battle; *Isanna* was in Ancient Britain, *Isium* in Egypt, and *Iskender* is still a sacred name amongst the Turks; we have it in other forms, as *Nissa* or *Nizza* (*Nice*), *Esa*, *Æsus* a god of Gaul, *Esar-haddon*, *Esau*, which is *Edom*.

We believe *Isis* to be a name of the Creator; it might stand for both "he is" and "she is;" but the form given to the image is usually associated with such female emblems as *mammæ*, *vulva*, long hair, &c.

But *Isis* has still farther been identified with the *Maia* of Hindoo mythology, and the mother of *Chrishna* at the time the sun entered into *Aries*. Impregnated by the power of *Brahm*, she became the mother of the sun or *Buddah*, to

whom was given the title of Saviour—a word applied to the leader of the Jewish hosts in Canaan, and again on their return from Babylon.

Is and Iës (I.H.S.) are unquestionably related to each other by a mystic link; the one has a feminine, the other a masculine, association.

The study of Isis naturally brings us to another word, conspicuously favoured in Spain, and common amongst us, namely *Isabel*. Its Hebrew and Greek and Italian form are *Yetzebel*, more familiarly known in our pronunciation as *Jezebel*.

The nearest signification I can find for the words *Itz* and *Bel*, which compose her name, are from the Hebrew, *Ezer*, meaning help, and involving the idea of saviour, healer, or restorer; and it is found in combination with *Ab*, father, in *Abiezer*, with *El*, the sun, in *Eliezer*, with *Eben*, Rock or Stone, in *Ebenezer*, with *Jao* in *Joezer*, and with *Hadad*, (glory or splendour) in *Hadadezar*.

The last syllable of Jezebel is *Bel*, possibly one of the numerous forms of writing *Baal*. In the Hebrew, we are told that it signifies my Lord; but, when we consider the great extent of country over which the word was used, I doubt whether we ought to be quite content with the meaning assigned to it by a nation so insignificant as the Jews were in all that related to war, commerce, and territory.

Before I speak of its universality, let me direct your attention to the way in which a fervently religious nation, like the Spaniards, have perpetuated their faith in the names given to their colonies. We have in the Western hemisphere, Vera Cruz, the true cross; Santa Fé, the holy faith; Trinidad, the trinity; Valparaiso, the vale of paradise; Los Angeles, the angels, &c. In like manner, some ancient nation has carried with its trade, or by missionaries to distant lands, the names of its sacred things; and the extent of a name

may thus become an indication of the commercial relations of those who used it. We had *Baal* in Phœnicia; *Beltis* in Chaldæa; and *Baly* is an Indian god. He was adored throughout Syria; in Carthage he was popular; in Palestine, Saul and David named sons after him — Esh Baal being a name common alike to Mephibosheth and father of Jezebel.

We have to this day a remembrance of Bale fires in Ireland, and Beltane games in Scotland. There are Ballys, Ballas, and Bels in abundance in Ireland, Mona, Scotland, England, and Wales. To select a few out of many in modern countries, we have, *Baalbek*, in Palestine; *Baale*, in Prussia; *Bâsle*, in Switzerland; *Bal*, in Sweden, Norway, and Algeria; *Bala*,* in Wales; *Palestine*, Affghanistan, and Rajpootana, *Baladore*, in Italy; *Balagansch*, in Russia; *Balallan*, in Scotland; *Balana*, in Greece; *Ballan*, in India; *Ballapalli*, in Madras; *Ballasur*, in Bengal; *Bali*, in Greece, Africa, and Madagascar; *Balia*, in Turkey; *Baliassa*, in Nepaul; *Balis*, in Syria; *Ballack*, in Perthshire; *Ballaugh*, in Mona and Ireland; *Ballyanno* and *Ballyporeen*, in Ireland; *Ballypur* and *Ballypanoor*, in Madras and Bengal; *Belper* is in Derbyshire and Madras; *Belpurg*, in Switzerland; *Bela* or *Beel*, in Hungary, *Beloochistan*, and Bengal.

After the study of the words *Joannes* or *Johanna*, *El issa beth*, and *Isabel*, we will proceed next to the cognomen *Anna*, or *Anna bel*.

Anna is a remarkable name. In the sacred writings we find her one of the wives of Elkanah, and the other wife

* It has been suggested, that if a name, like *Bal* or *Bally*, has a local meaning, e.g., if it mean "place," that it is not right for the philologist to assume that it can have any other! This idea, if carried out, would introduce the most absurd interpretations to certain current names. *Bally-poor-een*, becomes "the place of poor eyes;" *Ballaugh*, is "jolly place." It is true that those who suggest the idea assume the right to explain the local name by adopting Celtic, Cymric, Gaelic, Teutonic, Anglo-Saxon, High German, Low German, as best suits their fancy. They simply object to going too far back. Straining at gnats and swallowing camels is still a current practice.

is Peninnah. *Hannah* gives birth to a holy child, and herself utters a prophetic or sacred hymn. Another *Anna*, a prophetess, the daughter of Phanuel (the shining sun), welcomes our Saviour into the temple.

The sister of Dido was named Anna, and she came to Rome from Carthage. At Rome there was a festival of Anna Perenna, at which all sorts of jovial fun went on, and where the idea was prevalent that for every pot of wine drunk a year was added to the toper's life. This festival was about the middle or end of March. We find the name again as the mother of *Janus*, or the Sun-God. As *Oannes*, we have a mystical name in Babylonia for a deity, half man half fish (compare with Dagon, which means fish; also the word ΙΧθϋς (the fish) as applied to our Saviour, and the sacred mystery, still existent, of eating fish* on days commemorative of that Redeemer's death; also the sacred fishes preserved in certain tanks connected with Indian temples.) The *Oannes* referred to was represented as a benevolent teacher of mankind. In India we met with the goddess Bhavanni or Bouanni, and also Anna Poorna (food abundant—the goddess of abundance), whose festival was kept at the same time as at Rome. At Ephesus we meet with Diana (or *Diva*, (saint) Ana). In one of the Apocryphal Gospels the mother of Mary is spoken of as Anna.

In the Chaldaean and Assyrian mythology *Anu* was the oldest of the *Gods*, and his name was declined *Anu*, *Ani*, *Ana*—in Assyria, *Anna*, indeclinable. *Hea* or *Hoa* was the

* It is a point of some interest to know why the *fish* should ever become a sacred emblem. We may try to find it out thus.—1. The Serpent is an emblem; but it is one kind only which is orthodox—the *Cobra*. That one has the power of "erecting its head." It is essentially the emblem of masculine creative energy. 2. The fish is an emblem; but only one form of fish is proper. That form represents the female organ (*vulva*). 3. The fish is closely associated with *Anna*, and she is the Goddess of *Abundance*. No creature known produces so vast a number of eggs and offspring as the fish. From these considerations we consider that the Fish, or Fish-God, represents the *God of Abundance*, or the *Goddess*, if the style of belief favours the feminine idea of creation.

intelligent guide, or fish. Fishes abound on mythological Chaldaean and Assyrian tablets. *Nun* is also the name of a fish, and *Joshua* the son of *Nun* means the Saviour guide—the offspring of the *fish*.*

A learned author, the late Godfrey Higgins, in a book replete with thought, quoting from every available source, and from whom I have drawn much of my own knowledge on these matters, writes in his *Anacalypsis*, p. 646, the following very curious paragraph:—"Anna (Annus), or the year, was the mother of Maria, or Mera, or Maia, all of whom were the same; and Maia was the first month in the year on which, in very ancient times, began both the year and the cycle of ΙΗΣ (IHS) or 608." There was also a certain Anna who was supernaturally pregnant (like the wife of Abraham, who was sometimes called Maria and Isha, but commonly Sarah, Sarai, or Sara-iswati) in her old age, and she was delivered of a son whose name was John, Ioannes, or Jonas, or Jana, or Oannes. He was born at the Midsummer solstice, exactly six months before the son of Maria.

In another part (p. 305) he says, quoting Dr. Pritchard and Sir William Jones:—"The beneficent form of Bhavanni, termed Diva, or Anna Purna, is the Anna Perenna of the Romans. She is also the counterpart of the Egyptian Isis. She is figured as bent by the weight of her full breasts, and reminds us of the statue of Isis Multimammia. Bhavanni is invoked by the name of *Ma*, as was Demeter (Je mater) among the Greeks by that of Maia." All these, then, seem to be the same, only under different names.

Anna, then, or rather Annabel, appears as Baal bringing

* It is curious that the prominent names in the early national history of the Hebrews should have a Chaldaean rather than an Egyptian origin. *Moses*, *Aaron* and *Hur* represent *The Sun*, *The God Aar* (or Air), and *The Moon*. *Moses* married *Zipporah*; and *Sippara* was a Chaldee town, which, like *Hur*, was dedicated to the *Moon*. There was, too, a Sister—a virgin, whose name signifies "Virgin Mother." *Moses*, *Aaron* and *Hur* fight with *Amalek*, or King Am—the name of a Seythic deity.

in the new year at the vernal equinox, when once again, after the cold and storms of winter, the genial spring arose; again to die, but to reappear again perennially. Nor is it without significance that, in our own day, the springing herbs, &c. excite our hopes on *Lady Day*. *Anna*, standing alone, has evidently been intended, when used to the mother of any great personage, to mean the year in which he was born; just as we might say May is the mother of flowers.

The circling year, even amongst us, is often spoken of as if it were a being; *e. g.*, a youth can say—"Next year will change me from an infant to a man." In this way it is synonymous with time; the incessant circling is synonymous with eternity; and the idea of eternity suggests a higher idea, if such be possible.*

The cognomen *Anna*, so far as I can find, was more popular, in one form or another, amongst the Hebrews and Phœnicians than amongst the Greeks and Romans. In the first, we have *Annas*, *Anani*, *Isanna*, *Susanna*, *Susianna*, &c. Amongst the second, we have *Hanno* and *Hannibal*; and it is mentioned by Miss Young, in her *History of Christian Names*, that *Hannibal* is a favourite name in the county of Cornwall, so long thought to have been visited by Phœnicians; and that it appears not only in its pure form, but also as corrupted into Honeyball.

If we refer to the Geographical Index, however, we find that the word has been extensively known and generally

* We find *Anna*, in the form of *Ennius*, &c., common in Italy, and we have it compounded with *Heres*, the sun, in the Samnite Gens *Herennia*, and we meet with *Herennius* both in Etruria, Sicily, Rome, and in Italy generally. To-day we find *Enna* in Lombardy; *Enakleh* in Nubia; *Ennabery* in the Tyrol; *Ennel* and *Ennis* in Clare, Ireland; *Enney* in Switzerland; *Ens* in Austria; *Ennaro* in Algeria. We find in ancient times *Annaca*, an Amazon; *Anniva*, a mountain in Asia; *Annibal*, son of *Amilcar*; *Anniaris*, a Greek philosopher; *Hannibalianus* is half brother of Constantine. *Hanno* is a very common Carthaginian name. We have *Anna Comnena*, *Chenaana* in Israel (or *Anna*, chief ruler, equivalent to *Khan Anna*); *Annas* and *Annianias* in Judah; *Joannes* in Egypt (1 Tim. iii. 8). *Janna* is son of Joseph, and father of *Melchi* (see Luke iii. 24); and *Heli* is father of Joseph (*Ibid.* v. 23).

used. We have *Annaberg* in Austria, Saxony, and Silesia; *Anna Cariga*, *Anna Carty*, and *Annach* in Ireland; *Annack* Water in Scotland; *Anna Clay*, *Annacotty*, *Annadorn*, *Annagassen*, *Annagh*, *Annabeg*, *Annamore*, *Annahill*, all in Ireland—the number of *Annaghs* being eight. There is *Annak* in Egypt; and, again to return to Ireland—so strongly marked both in language and antiquities by Phœnician evidences—we have *Annakisha*, *Annalee*, *Annalong*, *Annamoe*, *Annamoy*. In Scotland, we have *Annan*, *Annat*; and in Indian parts we have *Annatom*, *Annavaram*, *Annawutty*, *Annantagarai*.

Since writing the above, I have met with the name *Annana*, as an Egyptian Scribe, in the time of Rameses the First (B.C. 1400), one of whose names is Miamun.

I have also seen an account of Mr. Lalcaca's paper read before the Society, in which it is stated that at the present time the Hindoos make a festival of the New Year's Day, when the almanac *for the new year was worshipped*, and merchants bought and worshipped new account books. This is clearly the *Anna Perenna* under a different form.

But it is not really the year that is worshipped, but the celestial power which brings it round. The female name leads us to recognise the mythic *Rhea*, the mother of *Chronos* (time), equivalent to *Maia*, the mother of *Cristna*, as *Anna* was mother of *Janus*. She used to begin the year at the vernal equinox—the time we now call *Lady Day*, our "Lady" being called *Maria*, or *Mary*, instead of *Maia*. The words *Isabel* and *Anabel* being both compounded with *Bel*, shows that *Anna* and *Issa* are cognate with that word and with each other. *Bel* is *Issa*, *Bel* is *anna*. *Johanna* and *Joannes* are allied to *Helios*, and *Helios* is *Bacchus*. The Latins tell us that *Elissa* (Dido) and *Anna* were sisters, and both children of *Bel*. Thus we come again to find ourselves in a circle of names, all mystic, yet having reference to the one great Being, whose names are as

numerous as his attributes, and to whose honour we still sing our glad *Hosanna*, or Help, O Anna.

The next name to which I wish to draw your attention is *Amelia*, or *Emily*. Its composition seems to have puzzled Miss Young. She very properly refers to its similarity with the Emilian family in Rome, and with *Amulius*, the father of Romulus;* and the Bishop of Natal refers to a Hebrew origin, the word in that language meaning *people*. But we must go further off than Italy, and further back than Abraham, if we wish to discover its significance. Of course you will recognise the last portion of the word as coming from *Helios*, the sun. The first syllable *Am* it is to which we will now confine our attention.

We find the word, in almost innumerable places, in China, India, Russia, Tartary, Persia, Egypt, Palestine, Austria, France, England, and Ireland.

If we turn to the sacred writings, we find *Ammiel*, *Eliam*, *Amos*, *Amon*, and *Amnon*; and we find that *Amram* was the father of Moses, the importance of which we shall shortly point out. In Egypt, we have Jupiter *Ammon*; and here let me recal the fact that Joseph married the daughter of a priest of *On*, a place identified with Heliopolis; we have *Amun* as a king in that country. In ancient Palestine we meet with *Amakek*—*Am* meleck, or king† *Am*. *Omadeus* was the name of Bacchus, and *Amadeus* has been a king in Piedmont. The mythic *Amazons* were prior to Bacchus and Hercules, and said to be of Scythic origin, though they came to help at the siege of Ilion (compare *Ilus*, Chaldee for *sun*). In Carthage we have *Amilcar*; in Italy, *Amelia* (*Am*, *helios*) was a city *older* than Rome. *Omphale* had Hercules for a slave. The word appears under another form at the Persian court, as *Haman*, and we still perpetuate it in *Amen*.

* Note that *Amulius* is a compound of *Am* and *Helios*, in its Italian form of *Julius*; and that *Romulus* is *Rama Ilus*, or the High Sun.

† Meleck, or Melec, is still in use in Arabia for chief. Melec Ric was the title of Cœur de Lion amongst the Saracens.

Of the antiquity of this syllable *am*, *aum*, or *om*, we have abundant evidence. *Adam* is the first name found in the sacred writings, and afterwards we find Esau is *Eldom*, and his dwelling is Mount *Seir* (Seir-sur, or fire). *Ham* is a son of Noah (compare *No Ammi*, in Egypt). *Gomer* is a son of Japhet (compare *Homer* the poet, *Omar* the Caliph, *Omar Pacha*,* the general). *Hamor* and the *Amorite* were in Palestine long before *Abram*. *Abram* fights with *Amraphel*, a king of *Ellasar*, and *Chedorlaomer*, a king of *Elam*, a name surviving to the Christian era; his allies are those of *Sodom*, *Gomorrah*, and *Bela*, which is *Zoar* (fire). *Abram* dwells at *Mamre*; his steward comes from *Damascus*; he has *Abimelech* for a friend (the father king). He gives tithes and reverence to *Melchizedek* (the king of justice), and *Ezrom* (Om is my help) is a grandson of *Judah* (Luke iii. 33). If we are to give any credit whatever to this account, we cannot but confess that there was a religion in Palestine prior to the arrival of *Abram*, and one to which he adhered; consequently, we are constrained to believe that the mystic names we have alluded to were not of Hebrew origin, or to be explained by reference exclusively to the Hebrew language.

We must seek their origin in a remoter antiquity; and a more ancient tongue will help us to the meaning. We have *Am* combined with *Baal* in *Amabel*, in Bengal; with *Deus* or *Divus*, *Deva* (Hindoo), *Dea*, in *Amadis*, in Kurdistan; with *ai* or *jah* in *Amai*, Egypt; with *Helios* in *Amaliapolis*, in Greece; with *on* or *an*, or *anna*, in *Amana*, or *Abana*, Palestine. We have *Amarat* in Persia and Mount *Ararât*. We have it again in *Am* or *Umballa*, and compounded with *Baal* and *palli* (Chaldeans—Philistines?) in *Amballipalli* in Travancore. We have it with *Bra* or *Brahm* in *Ambra*, in Algeria and Switzerland. We have still *Ammân*, in Turkey and Palestine; and *Omar* is familiar to us in the

* Pacha is another form of Passhur, whose root is Asshur, fire of the sun,

name of the Turkish general before Sebastopol, and is a favourite cognomen amongst Mahometan caliphs. We have it with *Ra*, the Egyptian title for king, lord, and sun, in *Amra* in Palestine, Egypt, India, and Persia; and with other combinations, which I forbear to notice farther than to call your notice to the word *Armagh*, which, as it is usually pronounced, is almost the same as *Omar*.

The word *Am* is pronounced *Aum*, and is sometimes spelled *Om*, as in *Omri*, the father of *Ahab*, the equivalent of *Amun Ra*.

Who or what is this mystic *Am*? I will first give you an anecdote, and then carry you with me to the most remote East. One of my brothers, a freemason, in reading certain books of the craft, came upon the word, and, wishing to test the truth of what he read, uttered this word as *Aum*, in casual conversation, to a very high-caste Hindoo, a clerk in his office in Bombay. The man was at once so awestruck that he scarcely could speak, and, in a voice almost of terror, asked where my brother had learned that word. To the Hindoo it was that incommunicable name of the Almighty, which no one ventured to pronounce except under the most religious solemnity.* And here let me pause to remark that the Jews were equally reverent with the name they applied to the Most High; and that the Third Commandment was very literal in its signification.

The above anecdote tells us that the word at the present day is current in India as a holy, secret syllable.

We go thence to Thibet, Cashmere, and Tartary, and we find it there as common as is *Allah* amongst the Mussulmen. *Om mani pannee*, *Om mani padme houn*, are the current prayers, whose real meaning, however, none seem to know, or, at any rate, are disposed to tell. The usual meaning attached, if I recollect rightly, refers to the lotus, an emblem of *Om*, or God.

* Compare Judges xiii. 18—"Why askest thou my name, seeing it is 'Secret?'"

Am, then, being a name of the Almighty, we turn to its significance in composition. In Egypt, as *Ammon*, it is coupled with *On*; and we analyse Jupiter Ammon as *Iu-pater Am on*—many names, but one God. In the Hebrew, we find amongst the princes of Israel two remarkable names—one *Am-is-shaddai*, and the other *Zur-is-shaddai*; one compounded of *Am*, while the other is compounded with *Zur*. As both *Is* and *Shaddai* were sacred names, it is clear that *Am* was not antagonistic to either, and *Am*, *Is*, *Zur*, and *Shaddai* are cognate terms.

Am, therefore, appears to be the very oldest of the names of the Most High, and, as we infer from its use at the present time, it is the most persistent. Its significance is *Mother*.

I find that Col. Rawlinson traced the existence of a *Scythic* empire over the whole of Asia, including parts of India, prior to the origin of the Chaldæan monarchy (about B. c. 2400). We have before noted *Khan* as a Tartar word—*Om* is unquestionably so. His name has in Tartary survived alone,—but associated with it we find stereotyped blocks for printing sacred books, and a style of worship so closely resembling that in vogue in Papal countries as to draw forth some strange comments from the Roman travellers who report them.

I could not use a more apt illustration to show the persistency of sacred names.

If we now attempt to draw the deductions that the inquiries respecting the origin of certain names have suggested, they assume a shape something like the following:—

We cannot penetrate into an antiquity in which there was not astronomical knowledge, and a religion with which that astronomy was not interwoven.

There is evidence that the knowledge and the religion

was spread over the whole of southern and central Asia, over the northern shores of Africa, and over the southern half of Europe, and along its sea-coasts. Whether the knowledge and religion was spread with a gradual spread of a race, or by missionaries following in the course of trade, we have only obscure evidence.

There is strong reason to believe that the knowledge and religion in question had its origin in northern or central Asia, or northern India.

Of the religion, we have traces in every civilised country of the old world; it closely resembles the purest form known of Buddhism. Such histories as we possess of ancient Babylon, Persia, Egypt, Greece, and Rome—I purposely avoid mentioning Palestine—lead us to infer that their religious systems were imported from the East, and that the spread westward was very gradual. The main argument in support of this is, the evidence of black images of divinities amongst a white population.

The existence of Baalite remains, and of Chinese and Phœnician signets, in Ireland, and a Yonic sanctuary in the north-west of Scotland, and the finding of a ring in Scotland of Indian style, uniting the Lingam, the Yoni, and the Cobra, tell us of the maritime enterprise of the ancient nation. In corroboration of our view respecting the Indian origin of many of the names met with in other parts of the world, let us take three of their conspicuous emblems. The *Linga*, or male emblem; the *Yoni*, or female emblem; and the *Agha*, *Argha*, or *Arca*, the sacred boat, containing a central mast, *i. e.*, a combination of the male and female emblems.

We have the first perpetuated amongst us in the spires of churches, the old maypole, the column, the round tower, which, when covered with a roof, became an exact representation of the male organ (a name by which I am told it is

still currently known amongst the Erse), and the current name for a tall rock at the mouth of the Boyne, now called the Ladies' Finger. We see it in the double towers of cathedrals here and on the Continent, in the Turkish minaret, and the Egyptian obelisk. We see it in certain crosses (Figs. 1 and 2) which, though now made decent,

FIG. 1.



FIG. 2.



came from a form too gross for English readers. We had it in the pilgrim's staff. We see it in the tall candles (note, if these were burned for light only, lamps would be preferred), and in the votive offerings at Isernia, only of late abolished. The pillar emblem was common amongst the Hebrews. Two existed, as Jachin and Boaz, in the porch of Solomon's Temple, presents made by the king of Tyre.* At a later period, the Jews adopted a more gross

FIG. 3.



* Two pillars, similarly situated, are found in a very sacred temple of the Sun, or Martland, in Cashmere, where also the trefoil ornament is largely used.

form, and this was spoken of as a horror. It was still more common amongst Greeks, Etruscans, and Romans.

We see the Yoni amongst the Old Assyrians as the sacred grove (Fig. 3); amongst Egyptians and Greeks as the ornament which Isis holds (Fig. 4). We see it in the Pomegranate (Rimmon), used by Solomon as an ornament to pillars, and by the Syrian king as a Goddess to be adored.

We see it in Pagan and Christian places, as the Greek letter Δ , in the *concha* worn by the pilgrim, in the mystic rings worn in rituals, in the *Galli* of Suria, and at St. Peter's.

At Mecca it assumed the form of a hole in the earth in front of the holy stone. In ancient Britain it is recognisable in the so called Druid circles, and at the large one at Abury there is reason to believe that the central mount represents a Linga. Probably the stole, called "orarian" by the Greeks, worn by certain nuns and priests (Figs. 5, 10), has this

FIG. 4.



FIG. 5.



significance, and when the priest donned it he became the representative of the Linga, the mast of the mystic Argha. In Fig. 5 the Stole is adorned by the Maltese cross, the remains of the Etruscan phallic of the Pontiff, and the cross is the representative of the Chaldæan solar cross.

We see the union of the two in the Crux ansata (Fig. 6), in the lotus, in the lily-work round Solomon's Temple pillars, in the coronation orb, and in the French fleur-de-lys.

We recognise it in the long cathedral, or other church with the central spire. The *nave* comes from *navis*, a ship; and the anchor (a foul one, *i. e.*, one that will not *hold*) is the Argha *plus* the cross, combined with the serpent (Fig. 7). It forms the holy arg, or ark, or boat of the Egyptians, with the central mast made of various forms, all upright.*

We see it shadowed forth in the Assyrian sign (Fig. 3), besides which a bull stands in one part, while at another part the female sign forms a sort of door to a tower, emblem of the male.

FIG. 6.



FIG. 7.

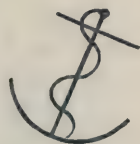


FIG. 8.



FIG. 9.



We see it in an ornament common in old churches (Figs. 8 and 9), which has the character common both to the male and the female. The acorn and cup (Fig. 8) is used mystically with the same design.

* The ark was a divine emblem both in ancient Chaldæa and in ancient Egypt, and each God had a separate form of ark. I cannot help considering that the Indian myth of a periodical destruction of the world by water—its restoration from Vishnu's navel, whence comes Mahadeva and his wife (*i. e.*, the male and female organ—as an *ark*, *i. e.*, boat and mast), from which emerge all living creatures, is associated with a Mosaic deluge, and the ark that preserves within it the parents of a renovated world.

The stole, worn by many nuns (Fig. 10), is a counterpart of the ornament of Isis.

FIG. 10.



FIG. 11.



FIG. 12



FIG. 13.



I must also call attention to the sacred shields of Solomon, Rehoboam, and Numa Pompilius (Fig. 11), and as seen in profile (Fig. 12). They were the representatives of the sacred navel of Vishnu, from which all creation sprang; and they also represented the “Os tincae,” through which all human creatures pass into the world.

Fig. 13 is a pilgrim token, used by those who visit a very ancient *Black* Virgin and child, at Amadou in France. Its oval form becomes significant when we find that the tokens of male saints have a different shape—square. The figures may be aptly compared to those of Ishtar, the Assyrian Elissa.

I think I have said quite enough to interest my hearers in the origin of certain names, and to demonstrate to what

extent an inquiry may lead when we wish to carry it to an exhaustive conclusion.

After writing the above, I came across Captain Wilford's account of the Sacred Isle of the West, and met in it the following passage (*Asiatic Researches*, vol viii., p. 264):—"It will appear in the course of this work that the language of the followers of Brahma, their geographical knowledge, their history and mythology, have extended through a range or belt about 40 degrees, or 2800 miles broad, across the old continent, in a south-east and north-west direction, from the eastern shores of the Malaya peninsula to the western extremity of the British Isles"—a conclusion almost identical with that I had arrived at in a different manner ere I saw his book.

Amongst the earliest of the Hindoo deities we find one of the name of *Soma*; and we remember that the Latin *Summus*, is the highest. We have also Zume, leaven, in the Greek, (*i. e.*, that which produces *spirit*, or alcohol); and *Summanus* was an ancient Etruscan and Roman divinity—the God of the *nocturnal* heavens. (*Soma* was the son of *Atri-Black*?)

The Author finished his paper by a short sketch of the history of early trading.

NOTE BY THE AUTHOR.—Since writing the two Essays, of which the above is an abstract, I have prosecuted my enquiries much farther, and have seen reason to modify my views. The result of my labours will be found in my forthcoming book, entitled "Ancient Faiths Embodied in Ancient Names." As I could not correct the proofs of my "prentice hand" satisfactorily, without rewriting the whole Essay, I have preferred to leave it marked with blots, which, though they offend my eye, yet remain evidence of the first strivings after truth.

TENTH ORDINARY MEETING.

ROYAL INSTITUTION, March 9th, 1866.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The minutes of the last meeting were read and signed.

It was explained by the President, that in consequence of the Rev. E. Mellor having found that an imperative engagement would take him out of town for the previous Monday, which was the ordinary night of meeting, it had been resolved to hold the meeting on that night instead.

Mr. William Blood was duly elected an ordinary member of the Society.

The following paper was then read :—

AN EXAMINATION OF SOME OF THE POINTS IN
MR. MILL'S CRITIQUE OF THE PHILOSOPHY
OF SIR WILLIAM HAMILTON.

BY THE REV. ENOCH MELLOR, M.A.

I HAVE undertaken, perhaps incautiously, to claim your attention to a critique upon Mill's *Examination of Sir William Hamilton's Philosophy*. There are other members of this society into whose hands such a service might have fallen more appropriately than into mine. I know not that I can plead any special reasons for undertaking this function, except that the study of metaphysics has been one of the most pleasant avocations of my life, to which I have turned with ever-increasing delight when released from the pressure of my ordinary duties; and that I shall ever account it one of the highest intellectual privileges that have fallen to my lot, to hear, for two years, the prelections of Sir William Hamilton, prelections which were valuable in themselves, but far more so for the stimulus which they imparted and the inspiration they created. It were easy to indulge in an eulogy upon that illustrious thinker, that, to those who have never felt the spell of his personal influence, might be regarded as excessive. This, however, is neither the time nor the place for such an encomium. But, whatever may be the future fortune of his philosophy, whether it be destined to hold its place, with some modifications, at the head of psychological systems, or, as many imagine, to sink into obscurity, as an imperfect and self-contradictory attempt to explain the facts and laws of human consciousness,—an attempt utterly shattered by a more scientific method of investigation,—no philosophical writer can hereafter speak of

the history of British metaphysics without paying homage to the amazing learning, the acuteness, and the honourable candour of Sir William Hamilton.

This homage is paid to him by MILL, who is by far the most powerful antagonist he has ever met with, and who, upon some points of his philosophy, has, in my opinion, effected his complete overthrow. He confesses, in his opening sentence, that "among the philosophical writers of the present century in these islands no one occupies a higher position than Sir William Hamilton. He alone (says Mill) of our metaphysicians, of this and the preceding generation, has acquired, merely as such, an European celebrity; while in our own country, he has not only had power to produce a revival of interest in a study which had ceased to be popular, but has made himself, in some sense, the founder of a school of thought." Similar testimonies are scattered throughout Mill's elaborate work, and they are in the highest degree creditable to a critic who, certainly, will not be accused of handling leniently or carelessly the doctrines of the illustrious Baronet.

The effect produced on a disciple of the member for Westminster by the perusal of his volume will be the conviction that a more methodical, unsparing, and hopeless slaughter was never exhibited in the whole history of philosophy. Chapter after chapter witnesses the English critic following the Scotch professor from position to position, assailing him with well-directed, and occasionally with most destructive fire; and if, as we hope to show, he has failed in many of his attacks, and has been seriously injured by the recoil or explosion of his own guns, we have no expectation of seeing the failures of Mr. Mill redeemed by any future philosopher of his school. His work seems to us to have accomplished all that is possible in the way of polemical criticism of the Scottish philosophy. It displays a percep-

tion of distinctions which is microscopic in the highest degree. Not a word of Hamilton's escapes him. More than once he misapprehends Hamilton, but never, so far as I have seen, consciously misrepresents him. It was my intention originally to have reviewed Mill's chapters *seriatim*, but the pressure under which I have felt constrained to supply a paper at an earlier date than was contemplated, has left me no sufficient time for such a continuous and exhaustive treatment. Should the society desire it, it will give me pleasure to furnish a supplementary paper next session.

I now proceed to read such criticism as I have had time to prepare.

Mr. Mill has a somewhat lengthy chapter on the law of *inseparable* association, and how Sir William Hamilton and Mr. Mansel dispose of it. It is, as many of you will be aware, Mr. Mill's royal principle. It has to stand in the place of intuitive and necessary judgments. Whether there be things that we cannot believe, or cannot *but* believe, the impossibility is in both cases to be explained by the law of inseparable association. He complains that this law has been all but universally treated with utter neglect even by philosophers themselves. Even Sir William Hamilton, in his *Dissertation on the Laws of Association*, is said not to shew the "smallest suspicion of this the least familiar and most imperfectly understood of these laws," namely, the law of inseparable association. He complains that his father, Mr. James Mill, "received but scant justice at the hands of Sir William Hamilton," inasmuch as the learned Baronet confines his recognition of this important law, which Mr. James Mill expounded, to a "bye corner of his work." And yet Sir William Hamilton assigns the reason why he attached so little importance to a law which professed, in his judgment, much more than it was in its power to accomplish,

namely, to account empirically for the judgments which, in Sir William's opinion, are original and underived. He says, "Mr. [James] Mill has pushed the principle of association to an extreme which refutes its own exaggeration, analysing, not only our belief in the relation of cause and effect into that principle, but even the primary logical laws."

It is probable that Sir William Hamilton did not attach sufficient importance to this law; but it is certain that Mr. Mill pushes it far beyond its province, as we hope presently to show. The incompleteness of Sir William's note on the whole question of association, its history and its theory, unhappily renders it impossible for us to know his full and final opinions. His Dissertation breaks off abruptly in the midst of a sentence in which he was actually discussing the objections to Mr. James Mill's theory. There is no chapter in Mr. John Stuart Mill's examination of Hamilton which raises a more testing *experimentum crucis* than the one on inseparable association, and there is none in which Mr. Mill's philosophy is seen to be more hopelessly at fault. His position is, that the reason why we cannot conceive any so-called fundamental principle as being different from what it is, is that we have never seen the things which it expresses in any other association. The reason why we believe the whole to be greater than its part is not to be found in any *à priori*, fundamental, primordial law of thought, but is the result simply of a uniform observation that the whole is greater than its part. Mr. Mansel has challenged this view of Mr. Mill, and endeavours to show that uniform association does not by any means generate the same feeling of necessity. "I may imagine," he says, "the sun rising and setting as now a hundred years, and afterwards remaining continually fixed in the meridian. Yet my experiences of the alternations of day and night have been at least as invariable as of the geometrical properties of bodies.

I can imagine the same stone sinking ninety-nine times in the water, and floating the hundredth, but my experience invariably repeats the former phenomenon only." How does Mr. Mill meet this objection, which proves that a uniform association does not, by any means, always generate the feeling of necessity? He meets it by introducing a modification into his theory, from which it appears that necessities of thought are never created except in cases where we never perceive one phenomenon without, "at the same moment, or at the immediately succeeding moment, perceiving the other." Could Mr. Mill have seriously imagined that this was a valid reply to Mr. Mansel. He asks if the *phenomenon day* is so closely linked with the *phenomenon night* that we never perceive the one without, at the *same time*, or the immediately succeeding moment, perceiving the other. Unquestionably day and night are not at the "same moment." This physical impossibility can scarcely be compassed to meet the exigencies of Mr. Mill's empirical philosophy. But he may be accommodated so far as to have his theory tested by a slight alteration of Mr. Mansel's terms. Let the moment at which the sun touches the western horizon, whether of wave or hill, be considered as the *end* of the day and the *beginning* of the night. Here we have, then, day and night linked together with as much of stringency as any two facts of experience can well be. They are, to all intents and purposes, co-instantaneous. As thus modified, I now repeat Mr. Mansel's statement. "I may imagine the sun rising and setting as now a hundred years, and afterwards remaining continually fixed in the meridian. Yet my experience of the alternations of day and night have been at least as invariable as of the geometrical properties of bodies." How comes it to pass that, with this uniform linking of day with night, the conception should be so easy of the sun standing still, either in the east, or in the west, and yet

that it should be impossible to conceive two sides of a triangle being half of the third side, or two straight lines enclosing a space. We have always seen snow white and grass green. But we can conceive of snow being blue and grass yellow. The greenness of grass has been as common an association as the one which enables us to state in one proposition that two straight lines cannot enclose a space, or that two parallel lines can never meet. How comes it that you can separate the conceptions *snow* and *whiteness* in an instant, and grass and greenness, and the sky and blueness; and yet you cannot, by any stretch of imagination, separate from parallel lines the property of never meeting. The following sentence of Mr. Mill may be ranked among the modern curiosities of literature:—“Had but experience afforded a case of illusion in which two straight lines, after intersecting, had appeared again to approach, the counter-association formed might have been sufficient to render such a supposition imaginable, and defeat the supposed necessity of thought.” It appears, then, if experience had presented us with something wearing the aspect of straight lines converging after intersection, it would have been an illusion. But why an illusion? Why may it not be a fact; a new, actual phenomenon. To proclaim such an appearance an illusion is surely to speak from a much higher ground than is logically accessible to one who is the expounder of a mere experimental philosophy which renounces all primitive and necessary judgments. We know that experience can do wonderful things. It can present us with Siamese Twins and a veritable Tom Thumb, and calves with two heads; and we can easily conceive of a race of men with a supplementary eye in the centre of the forehead, and another in the cerebellum, that they might thus look fore and aft; but how comes it to pass that while of these things some do exist and others are easy of conception, the meeting of two

straight lines, after intersection, should not only be *inconceivable*, but proclaimed an illusion, even in the very words in which the absurd fancy is expressed? Can Mr. Mill *conceive* of these lines meeting? Can he conceive of any world, or any condition of things, in which they would meet? Can he conceive of any creature, in any world, in whose experience they would not only *seem* to meet, but *actually* meet. I know that a squint can make one apple *seem* two; but does Mr. Mill imagine that, in any world, one apple can *be* two, and that if Mr. Mansel had his first choice there would be another left for Mr. Mill?

He tells us of an ingenious thinker, who was able to give the idea of a constitution of nature in which all mankind might have believed that two straight lines could enclose a space. What is meant here by a constitution of nature, I am at a loss to know. The phrase is so conveniently general, that it will hold as much or as little as you choose to put into it. Nor is it quite easy to know whether he means by mankind, mankind as it now is, or mankind as it might or would be, in that new constitution of nature. If man be supposed to retain his present qualities and powers, both of mind and body, and this new constitution should lead him to believe that two straight lines could enclose a space, this belief would either arise from the fact that in that wonderful universe they *would* enclose a space, or would *seem* to do. The former alternative I discount as absolutely inconceivable, even by Mr. Mill's ingenious friend. If they would only *seem* to meet and enclose a space, but not meet in reality, and men would believe that they did meet, though they did not, then Mr. Mill's friend can give, it appears, an idea of a constitution of nature in which mankind would *unanimously*, and on principle, and by what would be to them a *necessity*, believe what is not true. But, sooth to say, both Mr. Mill and his friend are at fault, in their forgetting that we are not

dealing with straight sticks, or pokers, or lines of rail, but with straight *lines*, as they are treated by mathematicians; and, with all deference to the thaumaturgy of the unknown philosopher, I venture to say, that no change whatever in the constitution of external nature would make the *slightest* change in the judgment mankind would form concerning straight lines; and that if the new constitution of nature included man, and operated such a change in him that he should no longer believe that two straight lines could not enclose a space, it might be lawful to doubt whether this was *mankind*, or another kind, or if it were mankind, we should certainly deem it so curious a kind of man as to deserve and require a separate asylum, in which, whether by straight lines or crooked ones, he should be safely enclosed from all contact with men whose mathematical conceptions are of the stamp which now prevail in our world. There is no limit to the brood of absurdities engendered in the womb of this philosophy, which makes an essential difference between what I hold to be foundation-truths, which are anterior to experience as regulative forms and necessities of thought, and those truths which may be demonstrated to be the educts of experience. According to Mr. Mill, it only requires a new order of association to break down and falsify these primitive judgments, and even to reverse their teachings. In the world fashioned in the brain of his ingenious friend, the circumference of a circle may be one-twentieth part of its diameter, the four angles of a square may be equal to four-and-twenty right angles, the square on the smallest side of a triangle may be equal to the sum of the squares on the other two sides, things equal to the same thing may be double of each other, one straight line may enclose a space, the square of $(a + b)$ may be $a^3 + b^3 + 36ab$, the square root of 4 may be 3 and $\frac{2}{3}$, nay, the relation of any one thing to any other thing may be

anything you please. All this might be if only new associations could be started. But did not Mr. Mill see that the judgment of consciousness is, that *no new* associations can be started on such matters as these, nay, cannot even be *conceived*; for thus boldly do I discard the fantastic world of his ingenious friend? Doubtless, the reckless manner in which Dr. Whewell,* in his *Inductive Philosophy*, multiplied primitive judgments, confounding with them convictions that are clearly derived, has had not a little to do in creating the extreme reaction which is represented by Mr. Mill; but I will venture to predict, that posterity will regard this phase of Mr. Mill's philosophy as shallow and unsatisfactory, and will wonder that a man so acute should have given the sanction of his great name to an analysis which leaves unexplained the main element which required explanation.

LATENT MODIFICATIONS.

In the next chapter, which treats of Sir William Hamilton's doctrine of unconscious mental modifications, Mr. Mill's criticism is sharp, thorough, and triumphant. He exposes with deserved trenchancy the manifest contradiction in which Hamilton has involved himself. By unconscious mental modification, Hamilton means operations of mind which, in their process, are *out* of consciousness, but which, in their *result*, are revealed in consciousness. Now, the question is not whether there are not such operations, but whether it is competent for Sir William Hamilton to maintain the affirmative in consistency with other portions of his philosophy. He has said, "Every act

* Since this sentence was penned, the illustrious Philosopher whose name I have mentioned has passed away; and I cannot resist the melancholy pleasure of paying my personal tribute of respect, shared, I doubt not, by every member of this Society, to the memory of one of the ablest men of the present century. The lustre he shed was not merely British, but European, and even world-wide; and the day is far distant when men shall have forgotten William Whewell, the author of the *History and the Philosophy of the Inductive Sciences*.

of mind is an act of consciousness:” “We must say of all our states of mind, whatever they may be, that it can be nothing else than it is *felt* to be. Its very essence consists in being felt; and when it is not felt it is *not*.” These are expressions which most assuredly debar Sir William from holding a doctrine of latent modifications.

The first instance which he adduces in proof of this doctrine is in the following terms:—“I know a science, a language, not merely while I make a temporary use of it, but inasmuch as I can apply it when and how I will. Thus, the infinitely greater part of our spiritual treasures lies always beyond the sphere of consciousness, hid in the obscure recesses of the mind.”

Now mark Mill’s reply: “But this storehouse, I submit, is not an unconscious action or passion of the mind. It is not a mental state, but a capability of being put into a mental state. When I am not thinking of a thing, it is not present to my mind at all. It may become present when something happens to recal it; but it is not latently present now; no more than any physical thing which I may have hoarded up. . . . I have the power to walk across the room, though I am sitting in my chair; but we should hardly call this power a *latent act* of walking.” This is fair, and, in our opinion, conclusive.

A second sort of latency is described by Sir William as follows:—“It exists when the mind contains systems of knowledge, or certain habits of action, which it is wholly unconscious of possessing in its ordinary state, but which are revealed to consciousness in certain extraordinary exaltations of its powers. The evidence on this point shows that the mind frequently contains whole systems of knowledge which, though in our normal state they have passed into absolute oblivion, may, in certain abnormal states, as madness, febrile delirium, somnambulism, catalepsy, &c., flash

out into human consciousness, and even throw into the shade of unconsciousness those other systems by which they had, for a long period, been eclipsed, and even extinguished."

Mill replies—"These, however, are not cases of latent states of mind, but of a very different thing—of latent memory. It is not the mental impressions that are latent, but the power of reproducing them. Every one admits, without any apparatus of proof, that we have powers and susceptibilities of which we are not conscious; but these are capabilities of being affected, not actual affections. I have the susceptibility of being poisoned by prussic acid, but this susceptibility is not a present phenomenon, instantly taking place in my body without my perceiving it. The capability of being poisoned is not a present modification of my body; nor is the capability I perhaps have of recollecting, should I become delirious, something which I have forgotten while sane, a present modification of my mind. These are future, contingent states, not present, actual ones. The real question is, can I undergo a present, actual modification without being aware of it?"

The third case of latent mental modifications is the following: "mental activities and passivities of which we are unconscious, but which manifest their existence by effects of which we are conscious?" Sir William Hamilton decides that there are, and even "that what we are conscious of is constructed out of what we are not conscious of; that the sphere of our conscious modifications is only a small circle in the centre of a far wider sphere of action and passion, of which we are only conscious through its effects." Sir William gives several examples, for the purpose of illustrating this position, and of these the following is one:—"The murmur of the sea is a sum made up of parts, and the sum would be as zero if the parts did not count as something. If the noise of each wave made no impression on

our sense, the noise of the sea, as the result of those impressions, could not be realised. But the noise of each several wave, at the distance we suppose, is inaudible; we must, however, admit that they produce a certain modification, beyond consciousness, on the percipient subject, for this is necessarily involved in the reality of their result."

Mill's reply is as follows:—"It is a curious question how Sir William Hamilton failed to perceive that an unauthorised assumption has slipped into his argument. Because the 'minimum visibile' consists of parts (as we know through the microscope), and because the '*minimum visibile*' produces an impression on our sense of sight, he jumps to the conclusion that each one of the parts does so too. But it is a supposition consistent with what we know of nature that a certain *quantity* of the cause may be a necessary condition to the production of *any* of the effect. The '*minimum visibile*' would, on that supposition, *be* this certain quantity, and the two halves into which we can conceive it divided, though each contributing its half to the formation of that which produces vision, would not each separately produce half of the vision, the concurrence of both being necessary to produce any vision whatever. And so of the distant murmur of the sea: the agency which produces it is made up of the rolling of many different waves, each of which, if sufficiently near, would affect us with a perceptible sound; but at the distance at which they are it may require the rolling of many waves to excite an amount of vibration in the air sufficient, when enfeebled by extension, to produce any effect whatever on our auditory nerves, and through them on our *mind*. The supposition that each wave affects the mind separately because their aggregate affects it, is therefore, to say the least, an unproved hypothesis." In all this we believe Mr. Mill to be invulnerable, and the sequel of the chapter is in admirable keeping with the portions I have just cited.

CAUSATION.

The accusation which I have brought against Mr. Mill in a previous part of my paper is verified most signally in his treatment of the *causal judgment*. His chapter on this subject, while distinguished for considerable acumen in the criticism of Hamilton's theory, no sooner comes to the constructive part than its failure is seen at every step. Let us state what *is* the "causal judgment" as a matter of psychological experience. We see a phenomenon begin to be, or, if you will, we see a *change*. This awakens at once the conviction that there must be a condition, or conditions, which have determined the change. It is necessary that we fully exhaust the judgment in our exposition of it, and that we have no residual element that has not received expression. If we hear a window crash, and see its fragments falling at our feet, by a law of our constitution, either *original* or *generated*, we immediately draw the conclusion that this new phenomenon is not self-produced. If you seek to render the feeling in words, it will not be enough to say that there *may have been* a cause which broke the window, with its correlative possibility that there *may not*. The mind has a fuller conviction than this, and not merely fuller but different, for as a matter of fact no man, from philosopher down to idiot, ever *practically* admitted the correlative possibility that there may have been *no* cause for the change in the condition of the window, which a moment ago was whole, but is now broken. I say no man *practically* admits such an alternative. Mr. Mill's language, in which he seems, with a courage truly astonishing, to give theoretic affirmation to this position, we shall presently consider. What, then, remains in this "causal judgment" which has not been yet expressed? Is it enough to say there "has been a cause which has broken the window," though for the time being,

you will observe, we know nothing of it, whether it was a stone, or a turnip, or a lump of lead, and we know not whether it was thrown by a boy, or a girl, or a man, and whether it was thrown by accident or by design? Is the causal conviction now *fully* explicated, when we have said "there has been a cause"? I would venture to make the appeal to the universal consciousness of man, with no fear as to its prompt and unanimous deliverance, that there yet remains a deeper feeling, without which this *categorical* statement would have no basis whatever; that this feeling is, "every effect *must* have a cause"; and that the individual utterance we pronounce in any given case of phenomenal change, that it has had its *cause*, grounds itself on the catholic and underlying, and, as I believe, original and primordial persuasion, that every effect *must have its cause*.

After discussing the various attempts of philosophers to analyse this causal judgment, Sir William Hamilton propounds his own, which, I confess, has always seemed to me to be one of the weakest points in his philosophy. He makes it to be a result of the "mental law of the conditioned." He deems his theory to be recommended by its cheapness and simplicity. "It postulates," he says, "no express, no positive principle; it merely supposes that the mind is limited, the law of limitation, the law of the conditioned, constituting, in one of its applications, the law of causality."* Again, he says, "It [that is, my theory] does not maintain that the judgment of causality is dependent on a *power* of the mind, imposing, as necessary in thought, what is necessary in the universe of existence. It does not at once universally affirm and specially deny; include without exception, and yet except. On the contrary, it resolves the judgment into a mere mental *impotence*, an impotence without either of two contradictories."

* *Philosophical Discussions*, Part vi. 1. 18.

Now, this theory of Sir William Hamilton is obnoxious, in my opinion, to several objections. It comes, he says, recommended by its cheapness, in that it postulates no express and positive principle; and Sir William here, as elsewhere, is laudably anxious to apply his admirable law of parsimony, which he gives in the following terms:—“Neither more, nor more onerous causes, are to be assumed than are necessary to account for the phenomena.” But I venture to suggest that the law of sufficiency is as important a law as that of parsimony, and that as much, or as many causes, must be assumed as are *competent* to account for the phenomena. And his exposition of the law of *causality* fails through defectiveness. The element of *necessity* in our consciousness, when we feel or affirm that every effect must have a cause, results, he says, from our *inability* to conceive an absolute commencement, that is, a thing starting into being as it were of its own accord. That there *is* this inability is not denied. It is not denied that it forms a most important part of the causal judgment. But we hold that the whole fact of consciousness, in so far as it asserts the necessity of a cause for every phenomenon, includes, not merely the “negative impotence” that we are unable to conceive of an absolute commencement, but the positive *potence* of conceiving that no thing can absolutely begin to be. Sir William holds that when a man affirms every effect *must* have a cause, he means nothing more than that he is *unable* to conceive it otherwise. On the contrary, I maintain that he means this, and something more; not only that he is unable to conceive an effect without a cause, but that he is *able* to conceive that no effect can be without a cause, and that the whole fact of consciousness is not exhausted in any philosophic exposition which does not combine both the negative and positive elements.

Again: If the causal judgment is purely a negative

impotence, on what ground does Sir William defend the existence of any positive primordial principles whatever? No philosopher insists more strongly on the fact, that we have within us regulative underived laws of thought. Who has insisted more than he on the absolute existence of space and time as conditions of thought? But why should he make the causal judgment an exceptional thing? The whole of his primordial principles may be, *with equal propriety*, ranked under the negative impotence to *think otherwise*. "Is the whole greater than its part?" Sir William would affirm this to be a positive datum of consciousness. Space and time he asserts to be equally positive conditions of all thought. But may we not retort upon him his causal theory, and assert that the judgment that the whole is greater than its part amounts to no more than that we are *unable* to conceive of the relations being reversed, or in anywise altered; and that the whole of those fundamental data upon which the entire fabric of our reasoning is reared are nothing more than an inability to think them otherwise than as now we think them? If a thing exist, it must, we say, exist in time: it must also exist in space. But why should the *must* in this case possess a positiveness of quality which Sir William denies to the *must* in the proposition that "*every effect must have a cause*"? So far as the deliverance of consciousness is concerned, these judgments are equally positive or equally negative.

But another objection, which seems to us fatal to Sir William's exposition of the causal judgment, is this, that it leaves us to the mercy of a remorseless scepticism. This was far from his intention; but the result is not less chargeable with this tremendous drawback. There is one principle which plays an important part in Sir William's philosophy, which he announces again and again, and which, rightly applied, is one of the most valuable canons

of thought, alike in metaphysical, theological, and scientific inquiries. It is this: that our powers of conception are not commensurate with the possibilities of things; that the Protagorean dogma of the mind being το τῶν παντῶν μέτρον must be received with great caution and multiplied limitations. Sir William insists with emphasis and iteration upon this valuable law, but he does not always see the vengeful havoc it makes with some of his own theories, and with his theory of causation as notably as any. Let us put in combination the two positions, which to us seem fraught with such destructive consequences. The first is, "Our causal judgment that every effect *must* have a cause is only a negative impotence, and means that we are *unable* to conceive of an uncaused phenomenon." The second is, "We are not, however, to constitute our power of conception into the measure of the possible in fact." The result of these two propositions is plainly this: that while we are unable to conceive of an effect without a cause, such a thing may nevertheless be, for we must not imagine that our mind can compass all possibilities. That is, just outside our farthest stretch of thought may lie the very thing which we have declared to be inconceivable. And as the inconceivable may not only be possible, but actually existent, so an uncaused effect, though inconceivable, may be possible; that is, the world, supposing it to be an effect, or to have had a beginning if you will, might have had its beginning without any pre-existent and determining power. Atheism of the blankest kind may, availing itself of these two principles, claim the most respectful consideration. With that scientific humility—that "*inscientia erudita*," which Sir William illustrates with such remarkable power—the Atheist may come, and when challenged as to his folly in rejecting a personal God as the creator of the universe, he may say, I exclude him by the law of philosophical parsimony.

It is true that I cannot conceive of any thing absolutely beginning to be. This is a law of "negative impotence" which conditions and bounds my powers of thought. But I have been instructed by Sir William Hamilton not to constitute my mind into the measure of the possibilities of things, and therefore I conclude, that though unable to conceive of the world absolutely beginning to be without a cause, it might nevertheless so begin. From this conclusion, legitimately drawn from the premises which are found in Sir William's philosophy, in its application to the causal judgment, there may be a valid and safe escape; but I confess, that while as a student I had vague and faint glimmerings that there was defect in his theory, every subsequent year has only served to brighten these glimmerings into strong convictions; and now, it is with great reluctance that I have ventured so publicly to record my dissent from one to whose influence I am so largely indebted, even for the discipline and the courage which have enabled me to occupy on this important question a position at issue with that of my master.

But if at issue with Sir William Hamilton, I am not less so with Mr. Mill, who has explained what never needed it, and has left the real question virtually untouched. For his doctrine in its fullness it is needful to look at his logic, as well as his recent examination of Sir William Hamilton. The element, you will remember, which has to be accounted for in the *causal* judgment, is that of necessity; and the question is, is this element native, original, regulative, or is it the result of experience, engendered by, and built up out of, individual instances of observed sequences? Mr. Mill maintains that the judgment in question is purely an empirical one; the facts being supplied by experience, and elaborated by the law of association. The element of *necessity* is, according to him, not a simple one, innate,

presiding over all our thinkings in regard to phenomena, and their determinant circumstances; but a composite result, a sort of generalisation from a number, greater or smaller, of observed connections between *A* as an antecedent, and *B* as a consequent. What does experience actually furnish? It furnishes individual cases of connection, as between *A* as an antecedent and *B* as a consequent, or *C* as an antecedent and *D* as a consequent. It supplies us with all the facts requisite for a scientific induction, by means of which we arrive at what we term general laws. But then, the conviction that every effect *must* have a cause is altogether independent of these individual instances. They supply us with a knowledge of the specific relations which one event bears to another in the shape of *unvarying* antecedence and consequence. Mr. Mill employs the word *invariable* in connection with this matter; but his philosophy is wholly incompetent to supply him with a term so absolute and transcendent. *Unvarying* is the utmost limit to which his empirical philosophy can carry him; and the frequency with which he serves himself of the nomenclature of a profounder philosophy is, perhaps, an unconscious indication that even he has more within his consciousness than his system has ever expressed. An *invariable* sequence is a sequence which *cannot* vary; but at the most he can speak only of a sequence which, so far as he knows, *has* never varied.

If the “*causal judgment*,” with its element of necessity, were the empirical product of a certain number of observations, we might naturally infer that it would be at its minimum in childhood, and would grow stronger as life advanced. But what is the fact? Is it at its minimum in childhood, and at its maximum in old age? So far from this, no one who has watched the movements even of very young children can have failed to see that they look out as instinctively and earnestly for a cause as they do at any sub-

sequent period of their life. They do not know as much of specific causes, but the conviction that every event or phenomenon must have its cause, is as firm in the very spring of their age as in its autumn. In those cases in which our beliefs are engendered solely by observation, the belief grows more compact and immovable with every new confirmatory fact we may note. The circumstance that *B* has followed *A* once, is felt to have but little value in the way of warranting the inference that *A* is the cause of *B*. But if *B* follows *A* with a uniformity which has no breach either in our experience or in that of others, so far as we are able to gather it, we then find it difficult to avoid the conclusion that *A* is the cause of *B*; and the conclusion acquires greater force with every new instance of the connexion which we perceive. But while this is true of all purely empirical laws, it most assuredly is *not* the case with the *causal* judgment, which experience can do nothing either to strengthen or to enfeeble.

We cannot but admire the hardihood with which Mr. Mill, in his chapter on "Universal Causation," says, "I am convinced that anyone accustomed to abstraction and analysis, who will fairly exert his faculties for the purpose, will, when his imagination has once learnt to entertain the notion, find no difficulty in conceiving that in some one, for instance, of the many firmaments into which sidereal astronomy now divides the universe, events may succeed one another at random, without any fixed law; nor can anything in our experience, or in our mental nature, constitute a sufficient, or, indeed, any reason for believing that this is nowhere the case."

Now this imaginary case has simply nothing to do with the question before us. That the laws of causation, or the order of dependencies of event on event, may be wholly different in some other firmament from what it is in

ours is not denied. There may, for aught we can tell, be a world in which, from the rapid changes which take place in the character of antecedents and consequents, no one can calculate on what shall be the aspect of matters from hour to hour. In such a world the science of induction would be impossible. But then, when Mr. Mill speaks of events succeeding each other "at random," he surely cannot imagine that he is here invalidating the element of necessity as found in the *causal* judgment. The *randomness* only interferes with the uniformity of the order of nature in such a capricious world; it does not interfere with the fact that even there every effect *must have its cause*. He had just before affirmed, that "there is not one of these supposed instinctive beliefs which is really universal. It is in the power of everyone to cultivate habits of thought which make him independent of them." On the contrary, I hold that the belief, or conviction, that every effect must have a cause *is universal*; and that it is utterly beyond the compass of the most subtle thinker to conceive any phenomenon flashing into fact without at once referring it to some determining condition, known or unknown. The whole chapter of Mr. Mill on Causation, in his examination of Sir William Hamilton, is marked by a carelessness, both of thought and expression, which contrasts painfully with the remarkable acuteness and subtlety which distinguish so large a portion of his volume. A very lengthy paper might be devoted to illustrations and proofs of the statement, and a few sentences are all I can now afford, before passing on to other matters. He tells us, for example, at page 295, that "it is *events*, that is to say, *changes*, not *substances*, that are subject to the law of causation." But how is such a sentiment competent to Mr. Mill, who, as he professes to know nothing of *substance*, cannot be authorised to deny that there may be the law of causation at work there, as well

as among the phenomena which arrest our senses? Again ; he says, "nothing is caused but events." Here he escapes once more from the strict letter of his philosophy; for he surely cannot categorically deny that the world was created; and if it were created, then *substance* was caused; or, if he *deny* the world to be substance, he again breaks bounds, denying *that* which at the most he can consistently only doubt.

PHILOSOPHY OF THE CONDITIONED.

Mr. Mill's chapter on the Philosophy of the Conditioned is one of the ablest in the book. Here he vindicates the positivity of our conception of the Infinite, as against Hamilton's doctrine of its negativity, and in my opinion with complete success. His triumphant maintenance of the positivity, as against Hamilton, equally involves the overthrow of Mansel, who adopted Hamilton's views, and carried them out to issues from which, I venture to think, Hamilton would have recoiled. In holding, with Mill, that our conception of the Infinite is *positive*, let us not be misunderstood. I do not contend for a conception which is adequate, complete, inclusive—a conception, in fact, which would amount to a *comprehension*. From its very nature the Infinite must ever transcend the faculties of a finite creature.

In 1858 I had taken the same ground which Mr. Mill occupies, in a Review, from which I may be permitted to cite the following extract: "In claiming for the mind something more than what is termed a merely negative conception of the Infinite, we are careful to distinguish between a positive *notion* and a positive *comprehension*; and we cannot but suspect that Mr. Mansel's reasoning is based on the confusion of these two ideas. Without entering at large upon the whole question at issue, between what we may denominate the positive and negative

schools, we wish to draw attention to a significant admission, made both by Sir William Hamilton and Mr. Mansel. While repudiating the positive notion of the Infinite, they both acknowledge that we possess an *irresistible belief* in it. We confess ourselves unable to understand a psychology which allows so strange a schism in the soul as is involved in such a distinction. Unable to find the Infinite in our conception, we are remitted to faith. We do not conceive the Infinite, but we believe it. The question is forced upon us, Believe what? Faith must have some object on which it is exercised, and what is the object furnished to it in the present case? It will not surely be contended by any one that there is such a mental experience as a negative faith. All faith, we imagine, is sufficiently positive. It is faith in something, and something which, before it receives the affiance of the mind or heart, must have been previously notionalised. Are we to suppose that faith is endowed with a creative faculty, or at least with such a power of alchemy that it can transmute that which is negative while a conception into a conviction that shall be positive? Whether the material of our faith come from our sense-experiences or our intuitions, the faith can be no more positive than the experiences or the intuitions. And to speak of that becoming a *potence* in faith, which is an *impotence* in thought, is, in our judgment, to trifle with language. A word or two in defence of our statement, that our conception is always as positive as our belief, may serve to clear up the confusion which has gathered around not only this, but many correlative subjects. It has been frequently asserted that we do and must believe many things of which we can form no conception. This language contains a fallacy, which the following illustrations may serve to expose. The physiologist says, 'I believe in life, though what life is is to me inconceivable.'

“This psychological analysis of the *ύλη*, or objective matter of faith, from which it appears that faith has neither a creative nor transmutative power, but is the deliberate surrender of the soul to truth already, in some positive degree, formulated by conception, is, we think, conclusive against the doctrine espoused by Mr. Mansel. There can be no such thing as faith in nothing, and this, because *nothing* is absolutely inconceivable. Faith must exercise itself on realities existent, or conceived at least to exist. In expounding the object of our faith, we are compelled to expound the object of our conception without addition or diminution; and if our conception be negative, our faith must be negative too. But, in truth, we must confess that we have failed, after taxing our powers of thought to the utmost, to catch the faintest glimpse of what kind of mental experience a negative conception or a negative faith is. The denial of one contradictory is the affirmation of the other. If light and darkness are exhaustive predicaments, to deny light is to affirm darkness, and to deny darkness is to affirm light. If vice and virtue cover the whole territory of moral predicables, the negation of vice is the same thing as the affirmation of virtue. If finite and infinite are terms of correlation which instantaneously and, of necessity, suggest each other, then to deny the infinite is to affirm the finite, and *vice versa*. With Mr. Mansel we maintain that we have an irresistible belief in the infinite: against Mr. Mansel we hold that this is impossible, except as determined and guaranteed by a corresponding conception; for beliefs are but conceptions receiving the consent and surrender of the mind. The doctrine which resolves our notion of the Infinite into a mere negative impotence is thus shown to postulate for faith a function which demonstrably it does not possess; and it cuts us off from all knowledge of an infinite God; for as the bridge of faith is constructed out of the materials

provided and fashioned by conception, it must partake of their intrinsic weakness. Take away the positive conception, and, as faith cannot support itself on nothing, it must become annihilated with the foundation on which alone it can stand."

When, however, Mr. Mill comes to deal with Mr. Mansel's application of the doctrine of the Infinite and the Absolute he stumbles and falls. Mr. Mansel maintains that *Infinite goodness* is different, not in degree only, but in *kind*, from finite goodness. Now it was perfectly competent for Mr. Mill to maintain that the difference is only *in degree*. This he does, but in such a manner and spirit as to leave a serious blot on a book otherwise singularly free from acerbity, and an *odium* which is at once both *theologicum* and *philosophicum*.

"Here, then," says Mr. Mill, "I take my stand on the acknowledged principle of logic and of morality, that when we mean different things we have no right to call them by the same name, and to apply to them the same predicates, moral and intellectual. Language has no meaning for the words Just, Merciful, and Benevolent, save that in which we predicate them of our fellow-creatures; and unless that is what we intend to express by them, we have no business to employ the words. If in affirming them of God we do not mean to affirm these very qualities, differing only as greater in degree, we are neither philosophically nor morally entitled to affirm them at all. If it be said that the qualities are the same, but that we cannot conceive them as they are when raised to the infinite, I grant that we cannot adequately conceive them in one of their elements—their infinity. But we can conceive them in their other elements, which are the very same in the infinite as in the finite development. Anything carried to the infinite must have all the properties of the same thing as finite, except those which depend upon the

finiteness. Among the many who have said that we cannot conceive infinite space, did anyone ever suppose that it is not space? that it does not possess all the properties by which space is characterised? Infinite space cannot be cubical or spherical, because these are modes of being bounded: but does anyone imagine that in ranging through it we might arrive at some region which was not extended; of which one part was not outside another; where, though no body interfered, motion was impossible; or where the sum of two sides of a triangle was less than the third side? The parallel assertion may be made respecting infinite goodness. What belongs to it as infinite (or more properly as absolute) I do not pretend to know; but I know that infinite goodness must be goodness, and that what is not consistent with goodness is not consistent with infinite goodness. If, in ascribing goodness to God, I do not mean what I mean by goodness; if I do not mean the goodness of which I have some knowledge, but an incomprehensible attribute of an incomprehensible substance, which for aught I know may be a totally different quality from that which I love and venerate—and even must, if Mr. Mansel is to be believed, be in some important particulars opposed to this—what do I mean by calling it goodness? and what reason have I for venerating it? If I know nothing about what the attribute is, I cannot tell that it is a proper object of veneration. To say that God's goodness may be different in kind from man's goodness, what is it but saying, with a slight change of phraseology, that God may possibly not be good? To assert in words what we do not think in meaning is as suitable a definition as can be given of a moral falsehood. Besides, suppose that certain unknown attributes are ascribed to the Deity, in a religion, the external evidences of which are so conclusive to my mind as effectually to convince me that it comes from God; unless I believe God to possess the same

moral attributes which I find, in however inferior a degree, in a good man, what ground of assurance have I of God's veracity? All trust in a Revelation pre-supposes a conviction that God's attributes are the same, in all but degree, with the best human attributes. If, instead of the 'glad tidings' that there exists a Being in whom all the excellencies which the highest human mind can conceive exist in a degree inconceivable to us, I am informed that the world is ruled by a Being whose attributes are Infinite, but what they are we cannot learn, nor what are the principles of his government, except that 'the highest human morality which we are capable of conceiving' does not sanction them, convince me of it, and I will bear my fate as I may. But when I am told that I must believe this, and at the same time call this Being by the names which express and affirm the highest human morality, I say, in plain terms, that I will not. Whatever power such a Being may have over me, there is one thing which he shall not do: he shall not compel me to worship him. I will call no Being good who is not what I mean when I apply that epithet to my fellow-creatures; and if such a Being can sentence me to hell, for not so calling him, to hell I will go."

I say nothing of the taste of this paragraph. It is with its logic I have now to do, and it is not difficult to shew that a more inconclusive series of sentences was never penned. Mr. Mill "takes his stand on the acknowledged principle of logic and morality." But how is an appeal to *morality* competent to him on the basis of his purely empirical philosophy? There is not an atom of morality which can have place in a scheme of speculation which is built wholly out of sensations. Other men might well be angry with Mr. Mansel, but it is unseemly and illogical for Mr. Mill to get into a rage.

But again; Mr. Mill declares his willingness to go to hell

rather than believe in such a Being as he thinks is described by Mr. Mansel. But in such a Being Mr. Mill does not believe, and therefore his courageous resolution is a very cheap affair, as any man can be bold enough in the presence of what he esteems to be a nonentity.

But further; Mr. Mill sinks into the most arrant nonsense in the very terms in which he declares that he will not believe in such a Being, or will not believe in his *goodness*. Did ever a professed logician commit such manifest suicide? "Whatever power," he says, "such a being may have over me, there is one thing which he *shall* not do—he shall not compel me to worship him." Did not Mr. Mill see that "*whatever power*" may mean Infinite power, and that *Infinite* power might make Mr. Mill worship him? Nay, did he not further see that, according to his own philosophy, that even what we term *instinctive* and necessary judgments are simply the results of association, his *own* moral judgments might be reversed in a moment in a new condition of things by an Infinite God, and that what he now denominates justice might then seem injustice, and *vice versâ*? For a man who believes that two straight lines may enclose a space, and that twice two may make five, in some other world, to talk so largely about the absolute certainty of his moral judgments, and defy even Omnipotence to alter them, is to commit one of the grossest philosophical blunders to be found in the domain of modern speculation. Mr. Mill has written much—so much, that he forgets in one place what he has written in another; and here he has forgotten what he wrote in his work on *Liberty*, page 10:—"We can never be sure that the opinion we are endeavouring to stifle is a false opinion, and if we were sure, stifling it would be an evil still." Now if we can never be sure that the opinion we are endeavouring to stifle is a *false opinion*, we can never be sure that *our own opinion* is the true opinion. What, then, can

Mr. Mill mean by his rashness in defying God and welcoming hell, on the strength of an opinion which may be absolutely false? With his philosophy there is not the least reason why any man should suffer himself to be enthusiastic in the defence of any opinion, and none certainly why he should run the unpleasant risk of martyrdom, purgatory, or hell.

PSYCHOLOGICAL THEORY OF MATTER.

A few remarks on one other point must bring my paper to an end. Mr. Mill does not believe in *substance*, either in its application to mind or matter. Mind is with him only a series of phenomena. "Neither mind nor matter," he says, "is anything but a permanent possibility of feeling." Now this theory of the mind, in my opinion, overthrows the whole of his psychological system. It cannot account for memory. A year ago I was in Paris: I remember the fact. What is it that *remembers* and calls up the fact, and appropriates it as one which pertains to me? And what is the *one* to which it pertains? Does Mr. Mill mean seriously to affirm that a *series* of mental states can be conscious of itself? If a series of mental states cannot be conscious of itself, what is it which retraverses the by-gone years, and refreshes and rekindles within the sphere of consciousness the events which have marked our history? What is that perduring entity, with its mysterious sense of unity and personality? Hear what Mr. Mill himself is compelled to acknowledge with respect to memory: "The thread of consciousness, which composes the mind's phenomenal life, consists, not only of present sensations, but likewise in part of memories and expectations. Now, what are these? In themselves they are present feelings, states of present consciousness, and in that respect not distinguished from sensations. They all, moreover, resemble some given sensations or feelings of which we have

previously had experience. But they are attended with the peculiarity that each of them involves a belief in more than its own present existence. A sensation involves only this, but a remembrance of sensation, even if not referred to any particular date, involves the suggestion and belief that a sensation, of which it is a copy or representation, actually existed in the past; and an expectation involves the belief, more or less positive, that a sensation, or other feeling, to which it directly refers, will exist in the future. Nor can the phenomena involved in these two states of consciousness be adequately expressed without saying that the belief they include is, that I myself formerly had, or that I myself, and no other, shall hereafter have the sensations remembered or expected. The fact believed is that the sensations did actually form, or will hereafter form, part of the self-same series of states or thread of consciousness, of which the remembrance or expectation of those sensations is the part now present. If, therefore, we speak of the mind as a series of feelings, we are obliged to complete the statement by calling it a series of feelings which is aware of itself as past and future; and we are reduced to the alternative of believing that the mind, or *ego*, is something different from any series of feelings, or possibilities of them, or of accepting the paradox that something, which, *ex hypothesi*, is but a series of feelings, can be aware of itself as a series. . . . I think by far the wisest thing we can do is to accept the inexplicable fact without any theory of how it takes place; and, when we are obliged to speak of it in terms which assume a theory, to use them with a reservation as to their meaning.”*

Accept the *inexplicable fact*! But the inexplicable fact is one which his philosophy has created, and which raises his philosophy to its foundation. In endeavouring to analyse the consciousness of *personality*, and distribute it into a series

* Pages 212, 213.

of feelings, he is at every step quietly taking the element of personality along with him. If I remember a hundred things in the order in which they occurred to me on any given day, or in any given year, there is a something which appropriates them all as belonging to itself, and which says, *I* saw them, *I* felt them. This *I* is, as an existence, conscious that it is independent of *any* given series of feelings; that it would be the same *I* as a personality under any conceivable conditions. It not only does not feel that it is constituted out of a series of sensations of any kind soever, but that no one link in any series could have existed without it; and that the series is only realised *as* a series, and as a series having place in one thinking being, in virtue of that sublime and ultimate fact, which shows our personality standing revealed in its own light. This consciousness is, I have said, ultimate, and as such incapable of analysis; and to make it the product of all the elements in a series, when neither series nor any link in it could exist without it; to seek to generate it experientially when there is not one fact in our experience which does not already presuppose and demand it, is in my opinion as absurd as to say, that we create space by moving, when every movement we take requires space as a pre-condition; or that we create time by feeling a series of pulsations, when their successive throbs are felt only to be successive because the notion of time is already in the mind as one of its regulative forms of thought.

ELEVENTH ORDINARY MEETING.

ROYAL INSTITUTION, March 19th, 1866.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The minutes of the last meeting were read and signed.

The Rev. John Sephton, M. A., was duly elected an ordinary member of the Society.

The following communication was then read :—

OBSERVED FACTS IN THE NATURAL HISTORY
OF THE *CHIRONOMUS PLUMOSUS*.

BY ALFRED HIGGINSON, M. R. C. S.

DURING the summer months of 1865 (say from May to October) I noticed the prevalence of red worms in a large earthen water-pot in my garden. These worms, the larvæ of the *Chironomus Plumosus*, attain a length of about one inch. They pass their time chiefly in tubes formed of mud and mucus, which they build on the sides of the pot, or on any object contained within the vessel. If left dry for any length of time, they quit the tubes, and swim for a time in the water. Their mode of progression is curious: the head and tail are brought together, and then immediately reversed; so that the appearance in the water is like a constantly repeated figure of 8, the impression of one circle remaining on the eye till the other is produced. These larvæ exhibit under the microscope powerful jaws, consisting of two upper mandibles and one lower, capable of breaking down vegetable structures. I once saw what I thought a fierce contest between two of these larvæ, but on investigation found that each was entangled by the same fibre, and they were only struggling to escape therefrom.

At the tail end there are appendages, which serve the purpose of respiratory organs. There are two anterior and two posterior organs of progression, situated on the abdominal surface of the body, each having at its extremity a sucking disc, surrounded by numerous hooks, and capable of being retracted and protruded as required.

In this larva, as in that of the gnat described by Dr. Carpenter, the circulation of the blood may be seen, propelled forwards through a dorsal vessel, and returning back-

wards through the abdominal cavity, and surrounding all the viscera.

When fully grown, and transferred to a glass for observation, these larvæ are soon found to change into the pupa state, the skin and jaws being cast off, and forming a not uninteresting object for the microscope. This casting of the skin of the larva is said to take place in the gnat several times during its progress to the pupa condition, but it is not so in the *Chironomus*. The length of time occupied by the larva condition I believe to be variable, depending somewhat on the supply of food while in that state.

The pupa is a very different looking creature from the larva: shorter, and dark in appearance; tail thin, and hairy at the end; head large, and tufted with a respiratory apparatus. The agile movements of the larva are replaced by a bending of the body and an occasional quivering or struggling motion. The cases containing wings, and those containing legs, of the perfect insect, become defined, and at last, by a secretion of air within the pupa, it rises to the surface of the water. I have twice seen the insect make its escape, and the time required is less than I shall need to write its description. The ascent from the depths of the garden-pot being noted, it no sooner reaches the surface than the portion which rises through the water bulges and cracks, and the head and body of the perfect insect come quickly into view. The legs and wings are shot out almost at once, and the insect floats away a few inches on the water, resting on its feet, before it spreads its wings and soars aloft. It was on a Sunday morning that I saw this beautiful phenomenon take place, and certainly the escape of this light and joyous insect, from its dense medium and confined dwelling, into the free air and sunshine, might well typify the rise of man's immortal part into the light and presence of his Maker.

The little voyager, however, has not done with this world.

The male *Chironomus* has large *antennæ*, and the tail is bifid, or furnished with forceps at the extremity. The female has little or no development of *antennæ*, and the tail is unarmed. Now about the eggs: I have seen the insects constantly hovering about the water-pot, and more than once have observed one at the edge of the water, resting, for some time, with its tail downwards. On examining the spot, I have found attached to the vessel a capsule of eggs, such as I will now describe. A gelatinous-looking mass, cylindrical in form, not exceeding three-quarters of an inch in length and one-eighth in diameter, adheres by one extremity to the vessel, the other end being free, and of a rounded form. It is easily compressed on a microscope slide, and found to have a structure of its own, namely, two bands or cords, running through its long diameter, and lateral septa, rather numerous, at right angles to these. In the divisions thus formed, eggs are found to the extent of two hundred or more. These eggs at first appear filled with slightly amber-coloured granular matter, but after a time life is evidenced by movement, and even circulation; the animal at last makes violent and repeated exertions. The sac bulges and gives way, and the larva, a perfect miniature of what I have already described, escapes from the egg. The empty shell may be found long afterwards. The egg is lengthened and flattish, like the seed of a melon, but scarcely visible without a lens. That these larvæ, from the first, feed on vegetable substance, was evident to me, from finding that a few blades of grass inserted into a wine-glass containing them were before long denuded of all their green structure, and the strong fibre alone remained unconsumed.

As already stated, I believe the period of the larva's change into the pupa to depend partly on its power of obtaining food.

At first I imagined this insect to be the gnat, which it a

good deal resembles; but the increasing discrepancies convinced me that I must look beyond the *Culicidæ*, which only comprise the gnat and mosquito. The *Tipulidæ*, or Long-legs, equally belong to the order *Diptera*, but are very numerous, eighty species being said to belong to the genus *Chironomus*. The name seems derivable from the Greek *Chironomeo*, to gesticulate, the insect having the curious habit of carrying the front legs, pointing forwards, both in flying and walking. This position may have reference to its mode of catching its prey, it being said to feed on the *Aphis*.

Professor JEVONS then gave a "Preliminary Account of certain Logical Inventions," the *Logical Abacus* and *Logical Machine*.

He began by remarking upon the aids which we constantly use in thinking and calculating. Words were nothing but mechanical signs, used to represent our thoughts; and philosophers were not without excuse when they doubted whether any true reasoning could be carried on without the use of language. The very name *calculation* pointed to the use of *pebbles* in reckoning; and the similar use of fingers in assisting our remembrance of numbers was the origin of the decimal system of numeration which exists in all civilised nations. Every one must have felt how laborious and uncertain was mental arithmetic, and how great a relief was the use of any sort of signs. He then described the *abacus* or arithmetical board, which had been used by a great many nations, such as the Greeks, Romans, Germans, French, and especially the Chinese. It consisted usually of a small square frame, with several horizontal wires strung with beads, which could be varied in order and made to represent various numbers, so as to facilitate calculations. The possibility of calculating by machinery had been proved by the

celebrated Pascal in the years 1642-5; but it was Mr. Babbage who had shown what extraordinary powers of this kind could be conferred upon machinery. The analytical engine designed by Mr. Babbage had not been completed, but an engine had been made by the Swedish engineer, Scheutz, according to Babbage's designs, and a copy of the Swedish machine was actually in use in the Registrar-General's office in London. The speaker then showed that the rules of logic had always been looked upon as in some degree a mechanical aid, metaphorically speaking, for the operations of mind. Even Bacon, when substituting a new logic and philosophy for that of the middle ages, had strongly insisted, in the second aphorism of his "*Novum Organum*," on the use of mechanical aids. "Neither the unassisted hand, nor the intellect entrusted to itself, can accomplish much. It is by instruments and aids that a work is perfected; and of these there is need, not less for the intellect than for the hand." It was not difficult to understand why hitherto there had been no successful attempt to make a logical machine—indeed, apparently no attempt at all. It was only a series of recent English logicians, Jeremy Bentham, Sir W. Hamilton, Archbishop Thomson, Professor De Morgan, of University College, London, and the late Professor Boole, of Queen's College, Cork, who had sufficiently extended and reformed the old logic to make mechanical aids at all possible. It was from long studying the works of Professor De Morgan and Mr. Boole, and discovering their true meaning, that Mr. Jevons thought he had been led to succeed in devising a mechanical logic.

The instrument called the *logical abacus* was then shown to the society, and several simple, and one or two more complicated, arguments were worked by it. The arrangements were of a very simple character, consisting of a black board with four ledges attached horizontally. A number of

slips of wood with small and large letters printed upon them in various combinations were ranged upon the ledges, and by means of wire pins could be readily classified in any required order. The letters represented the things to which the premises referred, and about which the information was required. The results appeared to be arrived at by gradually rejecting those combinations of letters which were inconsistent with the premises, until only a few remained which contained the required information, and which could then be readily interpreted. The same sets of letter combinations would do for any number of various arguments, the meanings of the letters being properly defined for each beforehand, like the letters *x. y. z.*, &c., in algebra.

Mr. JEVONS further explained that, though in the contrivance which he had finished as yet the motions and arrangements had to be made by hand, it would be easy to have them done in a more mechanical manner, so that when once the meaning and conditions of the question to be argued were clearly understood, it would be almost impossible to make any error in getting the required logical answers.

A discussion then followed, in which the Rev. H. H. Higgins, Mr. Campbell, Mr. J. Macfarlane Gray, Rev. J. Robberds, and Mr. Birch, took part.

TWELFTH ORDINARY MEETING.

ROYAL INSTITUTION, April 2nd, 1866.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The minutes of the last meeting were read and signed.

It was announced from the Council that Mr. Redish had been elected thereon, to fill the vacancy occasioned by Dr. Collingwood's resignation. It was further announced that at the next meeting the Society would have to proceed to the election of an Honorary Secretary.

Dr. Collingwood was proposed as an honorary member by the President, seconded by Dr. Ginsburg, on the recommendation of the Council.

Mr. James A. M'Mullen, M.A., and the Rev. J. S. Jones were duly elected ordinary members of the society.

Mr. MOTT exhibited the index to the catalogue of books in the upper hall of the public library of the city of Boston, and made some remarks thereon.

Mr. HIGGINSON exhibited a piece of wrought-iron pipe which had formed part of the internal arrangement of a hot-water cistern in constant use for the last four years. It had become so corroded as to require removal.

The Rev. Dr. Ginsburg having taken the chair, the following paper was then read :—

ON THE USE OF PROPER NAMES IN PHILOLOGICAL AND ETHNOLOGICAL INQUIRIES.

BY J. A. PICTON, Esq., F.S.A.

IN the pursuit of philological and ethnological studies, the evidence of proper names forms a most valuable and important element, but there is no class of evidence which requires to be more carefully guarded and placed under restraint. The fatal facility with which a casual resemblance in form or sound can be pressed into the service of any theory has led to deductions of the most extraordinary character. It has been gravely maintained, for instance, that the name of the Greek deity Apollo was derived from the Welsh *Ap-haul*, "The Son of the Sun,"* and that Osiris, the Egyptian deity, was an Irishman, or at least of Irish descent, and that his name should be written with the apostrophe, O'Siris, as we would write O'Brien or O'Connell.† After that, we may be quite prepared to connect Judy Maccabe with Judas Maccabæus, or Pharaoh king of Egypt with Fergus king of Ulster, both of which have been seriously propounded. Speculations such as these are calculated to throw doubt on all philological inquiries, whilst, when rightly pursued, there is no science more strictly amenable to law, or in which the conclusions are more logically deduced. My object in the present paper is to endeavour to shew the value of proper, as distinguished from common, names in philological and ethnological studies, and to specify the limitations and restrictions necessary to be observed in dealing with them.

* O'Brien, *Round Towers of Ireland*, 2nd ed., p. 61.

* *Ibid.*, pp. 77, 106.

The first observation I would make is, that proper names are not *roots*. A root or radical is defined by Max Müller to be, "whatever, in the words of any language or family of languages, cannot be reduced to a simpler or more original form."* By another learned philologist it is called "a primary sound, conveying some simple idea, which appears under different modifications in the derivatives from it."†

Now it is found, by close analysis, that certain languages, differing very widely at first sight in almost every particular, have their roots in common, and are thus classified into families having a kindred and cognate connexion. These families are few in number, usually limited to three—the Aryan, Semitic, and Turanian; which are considered, subject to future inquiry, to embrace all the languages spoken in the world.

In some languages—our own for instance—a true root, that is, a monosyllable conveying a primary idea which has not been modified or changed, is very rare. In Greek and Latin they are more numerous; and, where they have undergone modification, can be frequently traced to their original elements. In Sanskrit and Zend, we find a large portion of the original Aryan roots in their primitive condition of monosyllables, containing a single vowel, expressing an abstract idea, and only capable of use after undergoing certain modifications. The Hebrew language occupies the same position in relation to the Semitic family; its roots being tri-consonantal. The Turanian family is well represented by the Chinese, which may be considered as consisting entirely of radicals. These three families of language have been considered hitherto, by the most learned philologists, as having little or nothing in common in their roots, or, if

* *Lectures on Language*, 1st ser., p. 239.

† Monier Williams, *Sans. Gram.*, 2nd edit., p. 39.

there be a mutual relation, that its principles have yet to be discovered.

Confining our attention at present to the Aryan family, to which belong the Classical tongues and most of the languages of modern Europe, we find that the common roots, when traced back to their fountain head, though demonstrably identical, have certain differences in their literal expression which subdivide the family into races or tongues, as the Classical, which embraces the Greek and Latin, the High German, the Low German, the Slavonic, and the Celtic, with their subdivisions. For example, our own word "*to bear*" is a radical expression or root, which is found in the cognate languages thus :

<i>Sans.</i>	<i>Latin.</i>	<i>O. H. G.</i>	<i>Low G. & Eng.</i>
bhar	fer-o	pir-u	bear.

It is here seen that the aspirate initial in Sanskrit and Latin is equivalent to the tenuis in High German, and the medial in Low German and English. These relations being constant and according to fixed laws, it results that when we find a certain radical form in one language we look for its equivalent in another language of the same family, not in a word having the same assonance, but modified according to the known laws. Now proper names do not in any language occupy this position. They are essentially derivatives, expressing concrete, not abstract, qualities, and are incapable of being traced by those affinities which belong to radical terms.

I would next remark that all proper names were originally common terms, expressive of some quality—epithets, in fact. This, I believe, holds good universally. Every proper name, whether of place or person, has or had a meaning. On a recent trial, a witness being asked who Jeffreys was, answered

that Jeffreys was — Jeffreys; as the Lancashire clown, in reply to a question what these long names meant, said, “Aw connaw tell thee gradely, boh aw think it’s to tell folk by.” This is quite true; but Jeffreys, besides its use in identifying the man, has a history of its own, signifying “God’s peace,” in an age of violence and disorder. So our English names, our Edward (the noble ward), and Henry (home rich), and Richard (rich heart), and Albert (all bright). The German Herman (war-man), and Rudolph (wolf of fame); the Greek Andromache (a fight of men), and Pericles (far-famed), and Diogenes (heaven-born), and Alexander (helper of men); the Roman Lucius (light or clear), and Scipio (a staff), and Cæsar (hairy), and Cicero (a vetch), were all originally epithets pregnant with meaning. The same principle is equally true with the names of places, and with proper names of every kind. From this it necessarily follows, that if we find the same name in two languages, in one of which it has an intelligible meaning, and in the other it is an appellation “to tell folk by,” and nothing more, it is clear that it is in the former that the origin of the name must be looked for. The mere appellation must be a derivative; it implies intercourse of some kind by which the name has been transmitted, and usually furnishes indications of the nature of the influence which has been exercised, and the channel through which it has been received. Within the domain of history, and even beyond it, the study of proper names affords valuable collateral assistance of a definite and demonstrative character.

It is when we get beyond this period, and approach the mythological era, that the danger begins. Of all human studies, probably mythology has given scope to the most erratic and extraordinary theories. The exploration of that early period of the human race, before the dawn of history,

when minds were plastic and open at every avenue to the influences of nature around, has always possessed a charm with eager and speculative intellects. In the absence of facts, imagination and fancy have free scope to luxuriate. The smallest incident, the narrowest ground, or fancied ground, of fact, is used as a basis for a magnificent superstructure of theory, bound together by false analogies and supposed connexions, in which logic and reason have little share. In these creations nothing is more easily pressed into the service than a species of etymology which uses words, and especially proper names, as a sort of Chinese puzzle, to take to pieces and put together in any form which may best suit the object in view. The slightest degree of assonance, which in true philological studies is of no importance whatever, is eagerly laid hold of as proof positive of the point to be established, utterly irrespective of race, language, place or time. Thus, if the theory is the mythological connexion of Palestine with India, Brahma and Abram are taken as identical, although the two words have not one single point or idea in common. If the connexion to be established is that of Egypt with Ireland, Isis is assumed to be the same as the Irish Eas, with not the slightest proof except a casual resemblance in sound. If Greece and Ireland are to be connected, then the Greek Mycenæ is shewn to be identical with Irish Muc-Inis. If a writer has a peculiar theory about the ancient Scottish Culdees, he makes no difficulty in associating the Caledonian Culdees with the Asiatic Chaldees. Nay, if a word does not suit the theory in spelling it the right way, the difficulty is easily overcome by spelling it backward. “Quant à la derivation des mots par addition, subtraction, transposition, et inversion des lettres, il est certain que cela se peut et doit ainsi faire, si on veut trouver les étymologies. Ce qui

n'est point difficile à croire, si nous considerons que les Hebreux escrivent de la droite à la senestre, et les Grecs et autres de la senestre à la droite."*

The wild ravings of Henry O'Brien about the Round Towers and ethnological relations of Ireland, and the fanciful speculations of Godfrey Higgins respecting the British Druids, are principally based on this class of pretended evidence. The former, having adopted a theory that the Round Towers of Ireland are identical with the Lingams of India, and represent the male organ, proceeds to press into his service every thing in ancient names and antiquities. Almost every structure, from the Tower of Babel through the monoliths of Judea and the pyramids of Egypt, down to the Christian era, is a gigantic Lingam. Noah's Ark, Moses's cradle of bulrushes, the Ark of the Temple, and various other things were representations of the female organ. The ornaments of the Jewish temple, the pomegranates on the priests' garments, were representations of the same thing. All things in nature and art present themselves to O'Brien's mind as pictures of the organs of generation. In proof of this, etymology is his great resource; for instance, Sanskrit "Budh," which is usually supposed to mean knowledge, wisdom, is identified with the Irish "Fidh," meaning the male organ. In another place he identifies it with *Tuath*, in another with *Pooden*. If he wishes to shew the connexion of the Tower of Babel with the Indian Lingam, nothing is easier. The Tower is called, in Hebrew (Gen. ii. 4), "Magdil." Only reverse the word, and substitute *n* for *d*, and it becomes "Lingam!"

The days of what may be called the Romantic school of Philology are passing away. Here and there an isolated individual may still be found, who believes with O'Brien that a gridiron and a triangle are images of impurity; who

* Guichard, *Harmonie Etymologique*, quoted by Max Müller.

can derive Brimham from Heb. Beth-Rimmar, the house of Rimmar, or a Saxon barrow from Heb. Bar-ruo, pit of lamentation; but such philologists are as rare as believers in alchemy or the philosopher's stone. It is now understood that assonance in sound, or casual resemblance in form, prove nothing except the great unlikelihood of any connexion.

The above remarks are intended to shew, that the conclusions to be drawn from philological inquiries require reasoning and demonstration of the same rigorous kind as are thought requisite in other sciences, and that without this such speculations are worthless and misleading.

Subject to these limitations, let us now inquire what assistance we can derive from proper names in a historical and ethnological point of view.

Proper names naturally range themselves under three heads; 1. *Prænomina*, or personal names, represented in modern times by the baptismal appellation; 2. Surnames, or family names, which, when extended, become those of races and nations; 3. Local names, attached to habitations, towns, districts and countries; and to the rivers, mountains and other prominent features of physical geography. I will offer a few remarks on each of these in order.

I. *Personal Names*.—If we analyse the personal nomenclature of our own country, we find a considerable number which are self-developed, that is to say, which possess a meaning, if not in the speech now current, at least in the language spoken by our direct ancestors. Edward, Henry, Robert, William, Godfrey, Roger, Albert, Alfred, *cum multis aliis*, are indigenous to the race. They let us into the counsels, so to speak, of our early fathers, and shew us the thoughts and feelings of the domestic circle at the birth and designation of a child. In general, they are expressive of gentle thoughts and kindly feelings. Frederic (peaceful king), Godfrey (the peace of God), Ethelred or Alfred (the

noble peace), manifest aspirations of better things in a turbulent and warlike age. Wilhelm (willing protector), Richard (rich heart), Ethelred (noble counsellor), Osmund (protecting hero)—shew the chivalrous and manly side of the Teutonic character; whilst Albert (all bright), Robert (bright fame), Lewin, Leofwine (beloved friend), Adela (noble lady) — testify that parental affection looked forward to a bright future for its offspring, as it does still.

Looking a little further, we find other classes of personal names, which in our own tongue convey no meaning, but which derive all their interest from association. John, Thomas, Mary, Saul, Bartholomew, Matthew, Samuel, Abraham, Rebecca are foreign importations. They come to us invested with a sacred character. They point to the source from whence they have been derived, and are standing monuments of a change of faith, and of the thorough incorporation of a religion derived from a distant source, with our every-day feelings and dearest family ties. Another class of personal names—Julius, Augustus, Horace, Constantine, Anthony, Septimus, &c.—indicate the introduction of the Latin language and literature, and their diffusion, in spirit as well as letter, in the channel of our modern civilisation. The same may be said of common names of Greek origin—George, Philip, Helen, Agnes, Theophilus, Theodore, Alexander, &c.

The personal names in use amongst a people are frequently very suggestive. We know that in the ninth century the Normans conquered the province of Neustria, in France, to which they gave their own name, and that before many years were over they adopted the French language as their vernacular speech; but it is very significative that they still retained their Teutonic name-system. Robert and William and Richard; Baldwin, Almeric, Godfrey and Tancred con-

tinued to testify to the foreign origin and dialect of the conquerors long after all other traces had passed away.

The same thing took place in Central France. The inhabitants of France are a Celtic race, whose language became almost entirely Latinised by the long dominion of the Romans. When the Franks at the end of the fifth century subdued the country and established the French monarchy, they were comparatively few in number, and became gradually absorbed into the general population, adopting the language of the conquered race. It will be found, notwithstanding, that with the exception of John and Philip, which are Scripture names, every King of France, from Clovis down to Charles the Tenth, has borne a Teutonic name. So long does the prestige of a conquering race survive in names, when all other traces have been long swept away. The great Napoleon (Napolileone, the lion of Naples, or Nauplia) was the first monarch of France who bore a name derived from a classical source.

Personal names display in a remarkable degree the feelings and habits of a people. In the same manner as our old Puritan names, Praise-God Barebones, Stand-fast-in-faith Gibbs, Turn-to-the-right Muggleton, manifest the religious convictions of the parents who conferred them, so the old Hebrew personal names bear strong evidence of the theocratic nature of the system under which they lived. Elijah (God the Lord), Eliezer (the help of God), Daniel (God the judge), Jeremiah (the greatness of God), Isaiah (the salvation of the Lord), attest powerfully to the dominant ideas ever present before the minds of the Jewish people. But the Hebrew names also give evidence of those touches of nature that make the whole world kin. Isaac (laughter), Jemima (handsome as the day), Benjamin (son of my right hand), David (beloved one), Sarah (my princess), indicate

the joy and hope of the parents' hearts ; whilst Benoni (son of my sorrow), Ichabod (the glory is departed), bring us into contact with domestic scenes of affliction and suffering.

The character of the Greeks, intellectual, active, and enterprising, is reflected in their personal nomenclature. Pericles (far-famed), Demosthenes (the strength of the people), Cleon (fame or glory), Isocrates (possessing equal rights), testify to the political spirit of the times. Alexander (a defender of men), Andromache (a fight of men), Ptolemy (strife or warfare), Leonidas (the son of the lion), present the warlike tendencies of the race ; whilst Eudoxia (a good report), Sophia (wisdom), Philoxene (love of the stranger), Theophilus (beloved of God), shew us the softer aspects of the Greek thoughts and feelings.

Many of the earlier Roman names are unintelligible in the Latin language as it has descended to us. Romulus and Remus, Tullus Hostilius, and Numa, with many other names, bear strong witness to the mixture of races which originally settled in Rome, and which have left no trace of their origin. Further forward in Roman history, the names begin to bear a meaning in the Latin tongue. Scipio (a rod or staff), Martius (belonging to Mars), Brutus (heavy, stupid), Rufus (red haired), Bubo (an owl), Cæsar (long haired), Quartus, Quintus, Sextus, Octavius, &c., sufficiently explain themselves ; but on the whole the Roman personal name-system is anything but clear, and points to an origin outside of, and previous to, the adoption of the Latin tongue as the language of the commonwealth.

This part of my subject might be much extended, but the inquiry would carry us too far for the limits of the present paper.

Our next division is the subject of surnames, or family names. The Hebrews, the Greeks, and the Romans in the earliest period of their history, bore only one name. The

system of family, in addition to personal names, was derived from the Sabines. This was afterwards amongst the Romans extended to three, and in later ages frequently to four, names, as Caius Julius Cæsar Octavianus; where Caius is the “prænomen” or personal name; Julius, the “nomen” or name of the gens or tribe to which he belonged; Cæsar is the “cognomen” or name of the family or sub-division of the tribe; “Octavianus,” is the “agnomen,” which indicates that he was adopted from another ‘gens,’ the Octavii.

Commencing our survey as before with our own country, we find some remarkable differences in the nature and application of family names in the three kingdoms, which throw considerable light on their history and progress.

In England, south of the Tees, the great majority of surnames are derived from the names of places. Of the remainder, a large proportion are from trades, as Taylor, Smith, Wright, &c.; from personal peculiarities, as Green, Brown, Lovely, Wise, Goodman, Heavyside, Lightfoot, &c. The residue are for the most part either foreign importations, or have been originally appellations or nicknames, which have attached themselves to a family by use and custom. Clan or tribe names are almost unknown. In the other parts of the kingdom; in England north of the Tees, in Scotland, Wales, and Ireland, the prevailing surnames are patronymics; in Scotland and Ireland, they are the names of the clan or tribe. The reason for this difference opens up a very interesting chapter in the history of the settlement of the country. When the Angles and Saxons invaded England, they marched to the conquest in tribes, bearing a patronymic, supposed to be the name of their common ancestor. The Billings, the Warings, the Wallings, were respectively the children of Billa, Wœra and Walla. As they proceeded to extirpate or absorb the old inhabitants, they called the lands by their own names, Billingham, Walsingham, Wellington,

&c. The Saxons had only one personal name, and the tribal name, only applying to the tribe collectively, became gradually disused when the settled state of the country rendered association for mutual defence no longer necessary. Hence, when surnames were assumed at a later period, no tribal patronymics were left to fall back upon.

The country north of the Tees had a large infusion of the Danish and Norwegian element, in which it was usual from the earliest times to distinguish the parentage by the affix of "sen" or "son" to the paternal name. Olaf, the son of Eric, was distinguished as Olaf Ericsen; Niel, the son of John, as Niel Jansen or Johnson, and so on. When a fixed family name became requisite, about the fifteenth century, it naturally took the form of the accidental patronymic for the time being, and hence the numerous surnames ending in "son" which are found in the north of England and the south of Scotland.

In Wales, the custom of changing the patronymics was continued to a much later period, and in remote districts can hardly yet be said to be entirely obsolete. An old Welsh genealogy usually preserved the series of patronymics, as Roger ap Howel, ap Trevor, ap Robert, ap William, ap John, ap David, ap Thomas, &c. In modern times the ap (or son) has been dropped, and ap John becomes Jones, and ap William, Williams. Amongst the Gaelic race in Scotland and Ireland, the formation of surnames has been different. The more unsettled circumstances of the country continued the clan system to a much later period than elsewhere, and when the adoption of surnames for individuals became general, members of the clan naturally appropriated to themselves the name of their common ancestor, precisely as the Roman citizen took the name of the gens or clan to which he belonged. Thus, Rob Roy Macgregor Campbell, is almost the exact counterpart of Caius Julius Cæsar Octavianus,

From this short summary of the formation of surnames, some interesting conclusions may be drawn.

The name of a clan or tribe was not originally what we call a surname. It was rather a collective than a personal distinction, and was a pledge of mutual defence and protection in a time of rude violence, based on the idea of a common ancestry.

Amongst the Hebrews, where surnames were unknown, the relation of the individual to the community was expressed by the genealogical enrolment in the tribe to which he belonged, the records of which were carefully preserved and cherished. The Greeks, in their palmiest days, knew nothing of tribes, except in the large and somewhat indefinite sense of Dorians, Ionians, Achaians, &c.; and their name-system was purely personal; but the place of the tribe was supplied by the subdivision into numerous small republics, creating an intense local feeling, and exercising a sort of centripetal pressure on each individual towards a common centre. Amongst the Romans, patriotism, which meant the sacrifice of individual interests to the common good, was esteemed the highest virtue. The tribes, and their subdivisions, the *curiæ*, were the factors which made up the integer of the "*respublica*," or commonwealth. The individuals were mere fractions. Hence the early adoption of surnames, and the prominence always given to the collective denomination. The *curiæ* were corporations, each of which, in the *comitia curiata*, or general assembly, had one collective vote. Besides their collective influence in political affairs, each *curia* formed a distinct religious body, with their own altar and priest, and house of assembly for political discussion. The individual was thus merged in the clan, and it was his highest honour to identify himself thoroughly with it, in name as well as in spirit. This accounts for the unintelligibility of most of the Roman tribal

and curial names, as their origin is lost in the chaotic period before the component elements adopted a common language.

In England, the very reverse of this process took place. Amongst the Anglo-Saxon race, personal freedom and independence have always been the test of political liberty. Equality they have never cared for; but freedom of individual action and speech have been most jealously striven after and defended. We see this principle at work in the very early abandonment of tribal names, in the exclusively personal appellations, and, when at length surnames became necessary, in deriving them from personal peculiarities or local associations.

We now come to the consideration of local names, which afford much wider scope for speculation, and are calculated to reflect much more light on history and ethnology than those we have hitherto been considering.

If we examine carefully the map of England, we find the greater part of the names of our shires, towns, villages and hamlets formed out of our own tongue, and having a distinct and intelligible meaning; if not in our modern current speech, at least in that spoken by our direct ancestors. We find the patronymics, as Thurning, Gidding, Ludding, Billinge, &c.; the descriptions of habitations or collections of habitations—the “tons,” “wicks,” “hams,” “burys,” &c.; natural features, as “ford,” “brook,” “well,” “den,” “dale,” “hurst,” “wood,” &c. We have also the descriptions attached of East, West, North, South, high, low, &c. This suffices for a general description of the ordinary local nomenclature, which indicates that at some time or other the country was colonised by a race cognate to ourselves, who were in sufficient strength to settle the country, and call it by their own name. But if we look a little closer, we discover other phenomena. We find in various places, and especially round the coast, intrusive patches of names allied to, but not

identical with, the Saxon nomenclature. Such are "by," "thorpe," "thingwall," "ness," "thwaite," &c. These overlies the Saxon names, and shew that, subsequent to the Saxon settlement, another race, shewn by their language to be Danes or Norsemen, dispossessed the previous holders, and gave their own names to the lands. Looking a little further, we find indications, though much slighter than the last, of another intrusion and superposition of nomenclature. Such names as Malpas, Richmond, Beaumaris, have no meaning in English, and, if we had no history to confirm the inference, would distinctly intimate that a few settlers speaking the French language had had power in some instances to give their own names to the localities in question.

Proceeding further, we find other names of a different tongue underlying the general Anglo-Saxon stratification, and evidently of older date. A large number of towns and villages have their names terminating in Chester, modified in many cases into "cester," "caster," "-xeter," &c., as Lanchester, Colchester, Cirencester, Doncaster, Wroxeter, Exeter, &c. We can trace these through the Saxon form "*ceaster*" to the Latin "*castra*," the term for a Roman fortified place. There are other names, such as "Colne," Latin "*Colonia*," "Pontefract," Latin "*Pons-Fractus*," or broken-bridge, which point in the same direction. Many names of Anglo-Saxon origin also refer to Roman remains existing at the time of the Saxon settlements; Ermin Street, Watling Street, Stretton, Stratford, the Fosseway, indicate existing Roman roads, called in Latin "*strata*." Lexdon is a corruption of *Legionis Dunum*, Leicester, of *Legionis Castra*. Here then is indelible proof of the existence in England for a long period of the strong, powerful, and to a great extent beneficial, supremacy of Rome. We next find the remains of names which have evidently been Latinised, versions of appellations in a previous language, borne before the Roman

invasion. London, in English, can be traced to Lat. Londinium; but in neither language does it bear any meaning. Traced back to its Cymric form, we find it has an intelligible meaning, "Llyn-din," the brown marsh, adopted with a Latin termination by the Romans. The same principle applies to such names as York, Lat. Eboracum; Cymric, Eborac, or Evorac. In Wroxeter, we have the Cymric Wrac, or Vrec, still preserved in the hill called the Wrek-in, in the immediate vicinity. These Latinised Cymric forms shew very clearly that at the invasion of the Romans the places so indicated were already settled towns, the names being adopted by the conquerors, with the slight necessary modification to give them inflexion.

Going back a little further in our inquiry, we find many of the prominent features of the country, especially the hills and rivers, called by names having no meaning in our own tongue, but quite intelligible in the Cambrian language.

The word *Cwm*, Anglicised into *Combe*, signifying a hollow depression in the hills, is extensively found in the west and south. The word *Tre*, as a place or dwelling, is found in Cornwall and in the border counties of England. Most of our rivers also retain their Cymric names. The Esk, Axe, Usk (water), Avon (a river), Dulas, or Douglas (dark blue), Yarrow (rough), Derwent (clear stream), Don (water), Leven (smooth), Dee (black), with many others, retain the names conferred long before the Saxon or even the Roman invasion. The mountains of the north of England, Helvellyn, Blencathra, &c., also retain their Cumbrian names. From this we gather that there are clear evidences, apart from written history, that previous to the advent of the Saxons or of the Romans the country was peopled by a Celtic race, who have left behind no traces but the names, apparently indelible, which they gave to the great features of nature. This race appears to have been principally of the

Cymric or Welsh division, but there are a few indications in the names of the rivers, of a connexion with the Gaelic branch. Beyond this, philology will not carry us. If there were inhabitants in England previous to the Celtic immigration, they have left no trace of their language behind. Whether any physical remains exist of that early pre-historic period may be a question.

We have thus existing in England, independent of all written records, clear indications of the successive waves of population which overspread the country, and left their indelible records behind. We have a *tableau* of history before our eyes, inscribed on the face of the country itself, in characters which cannot be mistaken. What has thus taken place in our land is a type of similar operations in every other country, and rightly pursued, with due regard to analogy and induction, the examination of local names is a most valuable aid in the study of ethnology.

In Scotland, we find the same kind of process has been gone through, but with some difference in the details. Although there are considerable Roman remains north of the Tweed, yet the Roman names have almost entirely been lost, shewing probably the feebler hold which Latin civilisation obtained in these northern regions. The northwest and southeast of Scotland differ materially in their local nomenclature; the dividing line being to the north of the Friths of Forth and Clyde. South of this line there is a mixture of Anglo-Saxon and Celtic names, with a slight intrusion of the Danish element. The Celtic is of an intermediate character between the Welsh or Cymric and the Gaelic of the Highland district, derived probably from the Picts, who were the former inhabitants of this part of the country. North of this line the great majority of the names are pure Gaelic. The distinction between the Pictish and Gaelic districts is illustrated by a single word used for the outfall of a river,

which in the latter takes the form of Inver, as Inverness, Inverary, &c., and in the former is identical with the Welsh Aber, as Abernethy, Aberdeen, Abergeldie, &c.

In Ireland, as may be supposed, the Gaelic element in the nomenclature preponderates to a large extent, at least four times the whole of the others. The Danish element is small, not more than one per cent., but in particular districts there is a curious admixture, indicating successive settlements and conquests by different races.

The Isle of Man presents a singular combination of the original Gaelic with a larger infusion of the Norse or Danish than in any other part of the kingdom; the proportion per cent. of the names being of Gaelic 59, of Danish 20, and of Anglo-Saxon 21.*

Before quitting our own shores, I would refer to one origin of local names, of which we have not many specimens in our own land, but which we have largely contributed to spread elsewhere. In the 18th chapter of the book of Judges, we read that a marauding party of the tribe of Dan emigrated to the country of the Zidonians, and after taking by force the city of Laish, "they called the name of the city Dan, after the name of Dan their father." What was thus done by the Danites of old time was similarly practised by the Greeks of a later period, in their colonisation of Italy and Sicily, and in more modern times, has been adopted by the European colonists in America and Australia.

I have stated above, as a fundamental rule, that all local names had originally a meaning in the tongue of the people who apply them. This requires some qualification in the transfer of names from an old country to a new. The original meaning of the name may have been obscured by corruption, or have become obsolete, so that, in its new application, its associations are of an entirely different cha-

* Taylor, *Words and Places*, 1864, p. 257.

racter to those of the earlier one. For instance, we have Boston in Lincolnshire, and Boston in Massachusetts. The name of the American town is simply Boston, and conveys no ideas but those of the distinction of a locality. The earlier Boston points to the shrine of St. Botolph, with its mediæval and monkish associations. Ethnologically, however, the value of names thus transferred is even greater than that of original names, as indicating more readily their origin and connexion.

The system of nomenclature in the colonised countries throws great light on ethnological researches elsewhere. Let us take, for example, the State of Massachusetts, almost purely settled by emigrants from England. If we look at the map, we find the prominent features of the country retaining their original Indian names, precisely as the similar features in England have retained their Celtic names. We have the rivers Connecticut, Merrimac, Piscataqua, Saco, Amoonoosuck, &c.; the lakes Sebago, Winipis-co-gee, Squam; the mounts Monadnock, Waset, Moose, As-cutney. The names of the settlements are such as demonstrate emphatically their English origin, but very few are original, or given with a meaning. Salem, Concord, Marblehead, Egg Point, Cape Cod, Halibut Point, and a few others, have had names conferred with this view, but the vast majority are the simple reproduction of English names. Plymouth, Portsmouth, Cambridge, Manchester, York, Dover, Gloucester, *cum multis aliis*, are found not only in this State but all over the Union. In the more recent States, the names of the eminent men of the country—Washington, Jefferson, Jackson, Monroe, &c., are laid under contribution; whilst Jonesvilles, Brownvilles, Greenvilles, &c. abound. Although the system may have been a little different, the ethnological value is the same. A colony must ever betray its origin, in the names it gives to the locality in which it

settles. Staten Island, Hoboken, Middleburg, New Amsterdam, the Hudson River, unmistakeably indicate that the Dutchman planted his foot on the shores of New York; whilst New Orleans, Baton Rouge, Pontchartrain, Chaudelour, Plaquemines, and St. Louis equally illustrate the track of the French along the banks of the Mississippi.

The principles thus deduced from what we learn from our own history and from the events passing under our eyes, when applied to more remote ages, if carefully and cautiously applied, will lead to very interesting results.

I have already alluded to the conquest of Neustria (now Normandy) by the Danes or Normans, and their rapid adoption of the French language. It could not be expected that, under these circumstances, there would be much in the names of places to recal the Danish dominion. There are, however, some traces. Such names as Bec, Caudebec, Dieppe, have no meaning in French; they are simply Danish words allied to our own, with a very slight corruption. Bec is a brook; the same word as is still applied in Cumberland to a rapid stream. Caudebec is simply Cold-beck. Dieppe is the Frenchified form of the Teutonic Deep. Bœuf is a corruption of the Danish By, so often found in English terminations. Elbœuf is equivalent to English Helsby.

My limited space will not permit anything like a general view of the name-system of Continental Europe, and the deductions therefrom. I can only, in a very cursory way, mention a few of the conclusions to which we are, step by step, led by deductions from the facts presented.

It has been stated, that the earliest inhabitants of a country usually leave remembrances behind them in the names of its salient features. By comparing these between one country and another, it is a fair inference that if we find, not merely isolated cases, but something like a regular correspondence in this respect, we may track the course of

a particular race in its progress of settlement and migration. In some cases it is possible we may touch upon the mythical, but rather in the way of tentative hypothesis than absolute assertion.

I have alluded already to the river names in the United Kingdom as evidences of a former Celtic population. Let us now carry the analogy a little further. The name Avon occurs repeatedly in the three kingdoms; and if we cross the Channel we find it repeated in France in a variety of forms — Aff, Avon, Aven; frequently contracted into Onne, as in Yonne, Sa-one, Auonne, &c. In Portugal we have the Avia and the Avono. In Italy we find the Aven-za, the S-avone, the Aufen-te, &c.

The Celtic Dwr, for water, has a wide extent. In England, we have the Derwent (Dwr-win), Dar-t, Calder, &c. In France, there are the Dor-dogne, formerly Dur-anius, the Dur-ance, Douron, with many others. In Spain, the Dour-o, the Duer-na, the Tor-io, the Tor-mes, &c. In Italy, the Tor-re, the Tur-ia, the Dor-ia. In Germany, there are the Dr-ave, the Dur-bach, Dur-renbronne, &c. The syllable *dur* is very extensively found in the Latinised version of Celtic names, and always indicates a town on the bank of a river; Dur-obrivæ, Dur-obernum, Ebo-dur-um, Veto-dur-um, &c.

The name Don or Dan for a river is very widely extended over the whole of Europe, from the Ural Mountains to the Atlantic. The names Esk, Usk, or Isk, and Rhe, are also extensively distributed. Indeed, the names of all the rivers of Europe are comprised in a very limited nomenclature, there being scarcely an instance of an isolated name.*

The same connexion is observable in the names of mountains. The Gaelic Ben, Cymric Pen, is found in Scotland,

* See Taylor, *Words and Places*. Pritchard, *Researches*. Zeuss, *Celtic Gram.*

Ireland, Wales, and England, Ben-Lomond, Pen-nant, Pendlehill, Pen-y-gant, Pen-rith. There are the Pen-nine Alps, and the A-pen-nines in Italy, La Penne, Pen-herf and Pen-march in France. The Cymric Cefn is the Cevennes in France. The Celtic dun, Cymric din, as a hill fort, is included in many Romanised Celtic names, Campo-dun-um, Camalo-dun-um, Carro-dun-um; many of which are modernised, as Lug-dun-um into Lyons in France, Lugdunum into Leyden in Holland, Melo-dun-um into Melun, &c.

The terms craig (a rock), tor (a hill), cwm (a hollow), llwch (a lake), tre (a dwelling), llan (an inclosure), man (a district), nant (a valley), and other similar terms, are distributed over the whole of Europe, and very clearly indicate the existence of a Celtic population, before the immigration of the Teutonic tribes in the north, and the Latin-speaking nations in the south. By a careful comparison of terms, it can even be shewn where the Gaelic and Cymric families were respectively domiciled. The name of the Crimea, formerly Cimmeria, now so famous in European history, testifies to the occupation of the country by the Cymry or Welsh-speaking Celts. A branch of these were called the Lloegr or Lloegrians, who have left their name in the Loire in France, (formerly the Liger), and in the province of Liguria, in Italy.

Besides the nations of modern Europe, the Romance or Latin-speaking races, the Teutonic tribes, the Slavonians, and the two branches of the Celts, which form collectively what is termed the great Aryan stock, there are a few outlying districts, about the base of the Pyrenees in the south, and in Lapland and Finland in the north, still occupied by the remains of a people of altogether different origin, which there is reason to believe once occupied a great part of Europe. Here the study of proper names comes to our aid, and is capable of rendering good service. Throughout the

north and centre of France the names of places have generally a Celtic base, first Romanised, and then corrupted and contracted into modern French; as Lutetia Parisiorum (now Paris), Ambiani (now Amiens), Rotomagus (now Rouen). In the southwest of France, this Celtic element almost entirely disappears. The base of the names can only be explained from the Euskarian or Iberian speech. A large number end in *ec* or *ac*, as Quissac, Levizac, Gignac, Cahuzac, &c., the *ac* being a Euskarian termination. There is even reason to believe that the term Britain, which has been such a puzzle to etymologists, was originally conferred on our island by Iberian mariners.

The Spanish peninsula probably presents the greatest mixture and confusion of successive races of any country in Europe. Originally peopled by the Iberian or Euskarian race, colonised by the Phœnicians, Tyrians, and Carthaginians, afterwards peopled by the Celts, who drove out or amalgamated with the previous inhabitants; then conquered and colonised by the Romans, invaded and subjugated by the Goths, who were in turn driven northward by the Moors, but afterwards succeeded in expelling their conquerors; we find the local names throw a flood of light on the history and mutations of the people. We have glanced at the Iberian and Celtic elements; the Phœnician nomenclature is equally suggestive. The name *Spain* or *Sapan* was first applied by the Phœnician mariners, and means the country of rabbits. Escalona is a modification of Ascalon; and Mageda, reproduces the Philistine Megiddo. Malaga is the Phœnician Malaca (salt). Carthagera is derived from Carthago-Nova. Osilippo, now Lisbon, contains the term *hippo*, the city or walled town, which is found in several other names of places on the Spanish coast.

Romanised names of course abound in the Peninsula, some pure and simple, as Ciudad Real (the royal city,)

Valverde (the green valley), Villa-franca (free town), others merely Latinising a Celtic or Iberian word. The Moors, who held the country for nearly six hundred years, have left indelible marks of their dominion and supremacy in the nomenclature. Gibraltar (Gibel-al-Tarik, the mountain of Tarik), perpetuates the memory of a Moorish warrior, in the same manner that Orme's Head, in the principality of Wales, commemorates a Viking of Norway. The Arabic Wadi or Guadi (a ravine or river), gives name to the Guadalquivir, Wadi-l-Kebir (the great river), the Guadalmez, Guadalcazar, Guadalaxara, Guadalupe, &c. Sometimes the Arabic prefix is united to an ancient Phœnician name, as in the Guadiana (Wadi-anas). Trafalgar, (Taraf-al-ghar), is the promontory of the cave.

Scattered over Spain, we find multitudes of Arabic names, generally distinguished by the prefixes Ben, Al, or Cala, as Beniajar, Alcala, Almaden, Calatrava, &c. Medina Sidonia is a curious compound of the Arabic medina or city, joined to the ancient city of the Sidonians.

In the above remarks, I have hitherto avoided every thing of a doubtful or mythological character: the inferences drawn from the facts have been plain and simple and easily understood. I will, in conclusion, refer to a class of ethnological inquiries of a more radical kind, but at the same time not quite so easy of demonstration in their conclusions. Researches into remote antiquity are very attractive, if we are careful not to be carried away by the *ignis fatuus* of theory and fancied analogies. I will only give one specimen of this class of inquiries.

I have already said that all proper names originally bore a meaning; but in names of high antiquity this is not always apparent at first sight, and may have to be traced to its primary radical. The languages of modern Europe, with some of the Asiatic, are usually classed together as the

Aryan family. This appellation is taken from the name given to themselves by the two nations whose languages are the most ancient dialects of the family—the Sanskrit and Zend, or ancient Persian. The root *Ar*, or *Ir*, or *Er* is found in the appellations of many nations of this race. *Arya-varta* was the name of the country in India inhabited by the Aryas. The name of Persia, *Ir-an*, is attributed to the same source. In the cuneiform inscriptions of Assyria, the Medes and Persians claim to be of the Aryan race; and Darius is called an Aryan of the Aryans. By the Greek authors it is applied under the forms 'Αρία, 'Αρία, 'Αρίοι, &c. We find it in the Scythian *Arimaspi*, in the names *Ariapithes*, *Ariantes*, &c. In the old Teutonic names we find *Ariovistus*, *Aribert*, *Ariaricus*, &c. The ancient name of Ireland, *Er-in*, is very closely connected with the same root. *Ireland* is the land of the *Irs*, or Aryas.

We also find in most of these languages derivatives from the same root expressive of noble qualities and of skilled labour. The original word *ar* meant “to plough,” and is preserved in nearly all the Aryan tongues with the same meaning:—Gr. ἀρώ, Lat. *ar-are*, Gaelic *ar*, Goth. *ar-jan*, Ang.-Sax. *erian*. When the nomade tribes first began to cultivate the land, the labour of the husbandman became the distinctive mark of excellence, and the name of “cultivator” an honourable distinction. 'Αρι, in Greek, is the prefix to most words expressive of excellence. *Ar-tifex*, in Latin, is the workman of skill, in opposition to *opifex*, the common labourer. In Gaelic, *air*, *aireach*, signify noble, excellent, rich. *Ari*, *arya*, in Sanskrit; *airy-a*, in Zend, have the sense of respectable, venerable. *Ar*, in Ang.-Sax., means glory, honour, reverence.

Now it would be very easy to go further, and, taking a wide sweep of the Eastern world, draw into a net every word containing the syllable *ar* which we can find; *e. g.*, *Ararat*,

Aram, Arabia, Ar of Moab, Araunah, Arba, Ariel, Arioeh, &c., and thus, in imagination, "make the whole world kin;" but here sober judgment steps in, and reminds us of the principle with which we set out, that all proper names had originally a meaning, and therefore that radicals having the same sound but an entirely different signification in two languages, cannot be the same word. The Semitic *ar*, awaking or watching, cannot be the same root with the Aryan *ar*, ploughing or working. It is these considerations which must clip the wings of mythological fancy, and confine our researches within the limits of reasonable inference and logical analysis.

I must now bring these remarks to a conclusion. The science of language in its various aspects is a study well worthy of pursuit for its own sake, but much more for the light it is calculated to throw on the early history and progress of the human race. It is, therefore, of great importance that certain leading principles should ever be kept in view; that every step in our progress should be well defined and securely based. In this way only can we arrive at truth, which must always be the ultimate object of our inquiries.

A discussion followed the reading of the Paper, in which Dr. Inman, Rev. J. Robberds, Rev. J. Edwin Odgers, Dr. Ginsburg, and Mr. Unwin took part; and the thanks of the Society were voted to the Author.

THIRTEENTH ORDINARY MEETING,

ROYAL INSTITUTION, April 16th, 1866.

J. A. PICTON, Esq., F.S.A., PRESIDENT, in the Chair.

The minutes of the last meeting were read and signed.

Mr. J. C. Redish was duly elected Honorary Secretary, in the place of Dr. Collingwood, resigned.

Mr. Charles S. Samuel was duly elected an ordinary member of the Society.

Notice was drawn by the Rev. W. Banister to the recent demise of Mr. Charles Wye Williams, one of the members of the Society, whose attention had been early devoted to the uses of steam, and who had been one of the first to take an active part in applying it to marine purposes.

MR. T. J. MOORE exhibited the following recent acquisitions to the Derby Museum, viz., a fine adult stuffed specimen of the white-collared Mangaby monkey (*Cercocebus Collaris*), from West Africa; a mass of spawn of a squid, from Dundrum Bay, showing distinctly the young in enormous numbers, each invested in its own yolk-sac, and having the form very fully developed, the eyes distinctly visible to the naked eye, and the body and arms covered with pinkish spots; also a specimen of the red band fish (*Cepola Rubescens*), from Dundrum Bay; a three-spotted wrasse (*Labrus Trimaculatus*), from the coast of the Isle of Man; and a bergylt or Norway haddock (*Scorpaena Norvegica*), from the Liverpool fish-market; also drawings of three cetaceans, from the Atlantic, lately presented to the Museum, with the entire skeletons of the animals, by Captain Walker, of the ship "Trenton," Associate of the Society, and which Dr. J. E. Gray has lately

described from these materials, in the *Proceedings of the Zoological Society of London*, under the names of *Delphinus Walkeri*, *D. Moorei*, and *Clymene punctata*.

A Paper was then read by Mr. James Yates, F.R.S., entitled "An Account of the Greek Inscription on the Marble from Xanthus, in the Museum of the Royal Institution;" and subsequently the following Paper:—

ON THE WRITINGS AND INFLUENCE OF COLERIDGE.

By J. C. REDISH, Esq.

THERE has probably been no man in England during the present century who has done more to stimulate thought—to encourage the analysis of principles—to trace to their very foundation in the human mind the various opinions held by men—to promote speculative inquiry in politics, in poetry, and in religion, than the wondrous thinker, Coleridge. That great man, towering above all by whom he was surrounded, has left for our contemplation thoughts upon almost every subject of human interest, and I have thought it would be no unprofitable employment of the time were I to bring before you some of the meditations of this great thinker, and the conclusions at which he had arrived. If the remarks I am about to make appear discursive, I must remind you that such was the nature of the mind of Coleridge, and that he has not left his views embodied in any single systematic work, but they are found spread over a series of volumes, many of them only given to the world after his death, and therefore sadly deficient in arrangement. It was too a weakness of Coleridge that, whilst fully equal to the power of conception, he often lacked a corresponding power of execution; and thus it has come to pass, that whilst much of our modern progressive theology has come from him, while many have owed to him their cultivation of logic and metaphysics, and while still more are indebted to him for that enlightened and appreciating spirit of criticism which is now becoming common, it often happens that his influence

is overlooked, and the obligation to him denied. With confidence can I appeal to the students of Coleridge for corroboration of the statement, that when familiar with his writings, they can discover in them the original germ of most of the thoughts of modern writers where they seem to surpass those of the last century, and whose principal mission seems to consist in the development of the principles laid down by Coleridge, and the deduction of further and more remote consequences from them. That this influence, enjoyed by Coleridge, has been exercised for good, will doubtless be the conclusion of all who appreciate the excellencies of the present age, and will, I trust, in some faint degree be strengthened by the paper of this evening.

The end which he proposed to himself will be best explained in his own words:—

(*Table Talk*, p. 146.)—"My system, if I may venture to give it so fine a name, is the only attempt I know ever made to reduce all knowledges into harmony. It opposes no other system, but shows what was true in each; and how that which was true in the particular, in each of them became error, *because* it was only half the truth. I have endeavoured to unite the insulated fragments of truth, and therewith to frame a perfect mirror. I show to each system that I fully understand and rightfully appreciate what that system means; but then, I lift up that system to a higher point of view, from which I enable it to see its former position, where it was, indeed, but under another light and with different relations;—so that the fragment of truth is not only acknowledged, but explained. Thus, the old astronomers discovered and maintained much that was true; but, because they were placed on a false ground, and looked from a wrong point of view, they never did, they never could, discover the truth—that is, the whole truth. As soon as they left the earth, their false

centre, and took their stand in the sun, immediately they saw the whole system in its true light, and their former station remaining, but remaining as a part of the prospect. I wish, in short, to connect by a moral *copula* natural history with political history; or, in other words, to make history scientific, and science historical—to take from history its accidentality, and from science its fatalism.”

You will have noticed that the great attempt of Buckle, in his *History of Civilisation*, had been anticipated by Coleridge, though in a different manner, and not on the same comprehensive scale.

We will first turn our attention to the metaphysical system of Coleridge, and point out some of his distinctive opinions. Among these the most important, in the judgment of Coleridge himself, was the distinction which he drew between the intuitive reason and the logical understanding. This distinction will be best shown by quotations from the *Aids to Reflection* (p. 208, &c.)—“Reason is the power of universal and necessary convictions, the source and substance of truths above sense, and having their evidence in themselves. Its presence is always marked by the *necessity* of the position affirmed: this necessity being *conditional*, when a truth of reason is applied to facts of experience, or to the rules and maxims of the understanding, but *absolute*, when the subject matter is itself the growth or offspring of the reason. Hence arises a distinction in the reason itself, derived from the different mode of applying it, and from the objects to which it is directed; according as we consider one and the same gift, now as the ground of formal principles, and now as the origin of *ideas*. Contemplated distinctively in reference to *formal* (or abstract) truth, it is the *speculative* reason; but in reference to *actual* (or moral) truth, as the fountain of ideas and the *light* of the conscience, we name it the *practical* reason.”

(P. 209.)—"On the other hand, the judgments of the Understanding are binding only in relation to the objects of our senses, which we *reflect* under the forms of the understanding."

(P. 215.)—"We have only to describe Understanding and Reason each by its characteristic qualities: the comparison will shew the difference. I. Understanding is discursive; Reason is fixed. II. The Understanding in all its judgments refers to some other faculty as its ultimate authority; the Reason in all its decisions appeals to itself as the ground and *substance* of their truth. III. Understanding is the faculty of *reflection*; Reason, of *contemplation*."

(*Table Talk*, p. 144.)—"The English public is not yet ripe to comprehend the essential difference between the reason and the understanding—between a principle and a maxim—an eternal truth and a mere conclusion generalised from a great number of facts. A man, having seen a million moss roses all red, concludes from his own experience and that of others that all moss roses are red. That is a maxim with him—the *greatest* amount of his knowledge upon the subject. But it is only true until some gardener has produced a white moss rose,—after which the maxim is good for nothing."

"Now compare this with the assurance which you have that the two sides of any triangle are together greater than the third. This, demonstrated of one triangle, is seen to be eternally true of all imaginary triangles. This is a truth perceived at once by the intuitive reason, independently of experience. It is and must ever be so, multiply and vary the shapes and sizes of triangles as you may."

To those who are at all familiar with metaphysical enquiries, it cannot be necessary to point out the antagonism which exists between these opinions, and those of the prevailing school of Locke. Some, indeed, may think such

enquiries to be entirely profitless; but they should be reminded of the saying of Coleridge himself, that "without metaphysics, science could have had no language, and common sense no materials" (*Aids to Reflection*). The views held regarding the very sources and foundations of human knowledge affect opinions on almost every conceivable subject. The appeal which Coleridge held would lie to the intuitive faculty, as possessed of power to judge of matters anterior to experience, and even contrary to it, he freely exercised in the formation of his own opinions. Hence, he referred to the necessary and intuitive beliefs of men as themselves the evidence of the truths they made known, and requiring no other voucher for their acceptance. Thus, in matters of religion, he held that the highest proof for the existence of a God was the universal belief in mankind of His existence, and would enquire (*Table Talk*, p. 307), "How did the Atheist get his idea of that God whom he denies?" With regard to Christianity—in which Coleridge was a devout believer—he perceived it to be the perfection of reason, and that the highest proof of its truth was its capacity of satisfying the loftiest aspirations of man; holding that the internal evidence for moral and religious truth was stronger than any which could be found exterior to the human mind.

This brief sketch will probably be sufficient to shew the fundamental difference between Coleridge and the opposite school of thinkers; and, abstruse as the statement has necessarily been, will serve to shew the influence he has exercised upon modern thought. Work these principles out to their legitimate conclusions, and they will be found to have influenced a large portion of the speculative enquiries of the present century. When we find the old faith in sensualism broken down, and the belief maintained that the human mind possesses other sources of knowledge than those which come

to it through the senses, then let us remember that Coleridge materially assisted in producing this beneficial result.

Recent enquiries have directed the attention of men to various questions connected with the Scriptures and their interpretation; most of these enquiries had been anticipated by Coleridge, and his *Confessions of an Inquiring Spirit*, was the first of a series of works, during our own day, in which these questions have been discussed. Into these opinions it is, of course, impossible for me now to enter; all I can do is to point out his originality in the matter, and that his penetrating mind had foreseen that such questions would arise, and that he had done what he could to aid in solving them.

It must not be supposed, from the preceding remarks, that because Coleridge excelled other men in his speculative enquiries regarding the human mind, he was deficient in interest in the practical concerns of life. Many were the subjects on which he thought, and varied the questions on which he wrote. Coleridge devoted much of his attention to politics, and has left behind many profound observations on this science. He was no mere empirical thinker, as too many of our writers are at the present day. He saw too deeply into the constitution of human society, and appreciated too highly the functions and duties of government.

Remembering that Coleridge belonged to a political party diametrically opposed to that supported by John Stuart Mill, we may well believe that his merits must have been great to have drawn from Mill the following commendation.

(*Mill's Essays*, vol. i. p. 425.)—"The peculiarity of the Germano-Coleridgian school is that they saw beyond the immediate controversy, to the fundamental principles involved in all such controversies. They were the first (except a solitary thinker here and there) who enquired, with any comprehensiveness or depth, into the inductive laws of the existence

and growth of human society. They were the first to bring prominently forward as essential principles of all permanent forms of social existence, the three requisites of—I., a system of education, of which one main ingredient was *restraining discipline*; II., the existence in some form or other of the feeling of allegiance, or loyalty; and III., the necessity for a strong and active principle of cohesion among the members of the same community or state; as principles, we say, and not as mere accidental advantages inherent in the particular polity or religion which the writer happened to patronise. They were the first who pursued, philosophically and in the spirit of Baconian investigation, not only this enquiry, but others ulterior and collateral to it. They thus produced, not a piece of party advocacy, but a philosophy of society, in the only form in which it is yet possible, that of a philosophy of history; not a defence of particular ethical or religious doctrines, but a contribution, the largest made by any class of thinkers, towards the philosophy of human culture. The brilliant light which has been thrown upon history during the last half century, has proceeded almost wholly from this school. . . . And hence that series of great writers and thinkers, from Herder to Michelet, by whom history, which was till then “a tale told by an idiot, full of sound and fury, signifying nothing,” has been made a science of causes and effects; who, by making the facts and events of the past have a meaning and an intelligible place in the gradual evolution of humanity, have at once given history, even to the imagination, an interest like romance, and afforded the only means of predicting and guiding the future, by unfolding the agencies which have produced and still maintain the present.”

This is indeed high praise, though richly deserved; such as is seldom merited, and rarely given. It will not, however, have been deemed excessive by those who have carefully

studied Coleridge's treatise *On the Constitution of the Church and State*, *The Statesman's Manual*, and his other writings on this interesting subject. The careful perusal of these works fully supports the conviction that few other writers have had a clearer insight into the constitution of society, and the principles which govern its progress; and a considerable portion of the re-action which has taken place in this century, from the Jacobinical and revolutionary opinions which, to a certain extent, prevailed at its commencement, must be attributed to the salutary influence of Coleridge. With the clearness of his intellectual vision, he saw, with Burke, that government as well as liberty is a good thing and equally essential to human happiness. It was, therefore, his endeavour to reconcile the functions of government with the liberties of the subject, and the former he held to be limited by a respect for the latter. It is, however, to be noted with regret, that occasionally the application of his own principles to the questions of the day was in some degree imperfect, as in the case of Catholic Emancipation, to which he was opposed.

As an instance of Coleridge's political foresight, may be quoted his remarks made in 1833, on the subject of the American Union (*Table Talk*, p. 201); "Naturally one would have thought that there would have been greater sympathy between the Northern and Northwestern States of the American Union and England, than between England and the Southern States. There is ten times as much English blood and spirit in New England as in Virginia, the Carolinas, &c. Nevertheless, such has been the force of the interests of commerce, that now, and for some years past, the people of the North hate England with increasing bitterness, whilst amongst those of the South, who are Jacobins, the British connexion has become popular. Can there ever be any thorough national fusion of the Northern and Southern States? I think not. In fact, the Union will be shaken

almost to dislocation whenever a very serious question between the States arises. The American Union has no *centre*, and it is impossible now to make one. The more they extend their borders into the Indians' land the weaker will the national cohesion be ; but I look upon the States as splendid masses to be used by and bye, in the composition of two or three great governments."

(*Table Talk*, p. 230.)—"When New England, which may be considered a State in itself, taxes the admission of foreign manufactures, in order to cherish manufactures of its own, and therefore forces the Carolinians—another State in itself, with which there is little inter-communion, which has no such desire or interest to serve—to buy worse articles at a higher price, it is, in fact, downright tyranny of the worst, because of the most sordid, kind. What would you think of a law, which should tax every person in Devonshire for the pecuniary benefit of every person in Yorkshire? And yet that is a feeble image of the actual usurpation of the New England deputies over the property of the Southern States."

(*Table Talk*, p. 231.)—"The free class in a Slave State is always, in one sense, the most patriotic class of people in an empire ; for their patriotism is not simply the patriotism of other people, but an aggregate of lust of power and distinction and supremacy."

These are words of singular truth, and mark the power and discrimination which Coleridge brought to bear on his political enquiries. It is well known, that for some years he was a regular contributor to the *Morning Post*, and did much to raise that paper into the high position it attained, especially with reference to its articles on foreign politics. He has left it on record, that his method of enquiry into the questions of the day consisted in substracting the differences, which he discovered between those events and others of a

similar nature recorded in history, from their resemblances, and then judging from the residue what the result was likely to be. Such was the influence of these articles, and the reputation they had attained, that Mr. Fox asserted, "that the recommencement of the war with France was produced by the *Morning Post*;" and during his visit in Italy, Coleridge became the specified object of Bonaparte's resentment, and an order for his arrest was actually sent from Paris.

A few brief sayings may here be quoted from Coleridge on political questions.

(*Biographia Literaria*, vol. i., p. 213.)—"In Mr. Burke's writings, the germs of almost all political truths may be found."

It is always a good sign when a political writer evinces a reverence for Burke, who was, without doubt, the greatest political philosopher the world ever saw.

(*Table Talk*, p. 84.)—"I, for one, do not call the sod under my feet my country. But language, religion, laws, government, blood—identity in these makes men of one country."

(*Table Talk*, p. 176.)—"It was the error of Milton, Sidney, and others of that age, to think it possible to construct a purely aristocratical government, defecated of all passion, and ignorance, and sordid motive. The truth is, such a government would be weak, from its utter want of sympathy with the people to be governed by it."

In this passage, attention is drawn to a simple, yet important, necessity for every government which is to exist with the willing consent of the governed, namely, that there shall exist sympathy between the two; that they shall have the same views, the same desires, the same objects, the same hopes, and even the same antipathies. Where these do not exist there can be no true harmony; and the principle of

duty towards the government can never be supplemented by the feeling of loyalty on the part of the governed.

There is an interesting passage in the *Table Talk* (p. 271), where Coleridge appears to have anticipated the existence of a modern personage. He says, "A Quaker is made up of ice and flame. He has no composition, no mean temperature. Hence, he is rarely interested about any public measure but he becomes a fanatic, and oversteps, in his irrespective zeal, every decency and every right opposed to his course." One might imagine these words to have been written within the last few years. They were, however, spoken on the 14th August, 1833.

In probably no department of literature has Coleridge rendered more service to his age, than in the new method and higher spirit of criticism which he introduced, and the truer appreciation which he thus secured for our great English writers: more particularly with reference to Shakespeare, Milton, and Wordsworth, was this service rendered. In the ante-Coleridgian period Shakespeare was too frequently regarded as a wild, irregular, untaught genius, unacquainted with the productions of his predecessors, and incapable, therefore, from his ignorance, of either imitating or extending their art; in fact, that he used no art at all, and, therefore, by a happy chance, missed writing the regular type of tragedy which these critics admired, and wrote something in its place which was neither tragedy nor comedy, but still wonderful of its kind. From all this nonsense of the critics, Coleridge delivered us. He was the first in this country who boldly asserted, that "that criticism of Shakespeare will alone be genial which is reverential;" and that his supposed irregularities and extravagances were the mere dreams of critics, who ventured to condemn what they lacked the power to understand. He maintained, "that

in all points, from the most important to the most minute, the judgment of Shakespeare is commensurate with his genius—nay, that his genius reveals itself in his judgment as in its most exalted form.” And so far from allowing that the puny minds of these critics were to be the measure of Shakespeare’s art, he affirmed, “that to judge aright, and with distinct consciousness of the grounds of our judgment, concerning the works of Shakespeare, implies the power and the means of judging rightly of all other works of intellect, those of abstract science alone excepted.”

He exposed the folly of supposing, that because the rules of art applicable to the romantic drama were not the same which applied to the classical drama, that, therefore, no such rules exist; and showed that the very rules of criticism, by which any works of art are to be judged, can only be drawn, by a process of generalisation, from the examination of these works of art themselves. The result of such an examination into the plays of Shakespeare shows, that a compliance with the necessities of his art, and a knowledge of its requirements, is the cause of many a scene, of many a passage, and of many a line, which former critics had failed to understand; “for no work of genius dares want its appropriate form; and as it must not, so genius cannot, be lawless; for it is even this that constitutes its genius—the power of acting creatively under laws of its own origination.”

Having pointed out that science, and not prose, is the proper antithesis to poetry, and given his adhesion to the dictum of Milton, that poetry should be simple, sensuous, passionate; that “it should be simple, and appeal to the elements and primary laws of our nature; that it be sensuous, and by its imagery elicit truth at a flash; that it be impassioned, and so be able to move our feelings and awaken our affections;” he proceeds to point out in various details how

Shakespeare conformed to these eternal rules of criticism. The chief characteristics of his plays he deemed to be—

I. The preference of expectation to surprise.

II. Signal adherence to the great law of nature, that all opposites tend to attract and temper each other.

III. Keeping at all times in the high road of life; never rendering that amiable which religion and reason alike teach us to detest.

IV. Independence of the dramatic interest on the plot; the interest in the plot being always in fact on account of the characters, not *vice versa*, as in almost all other writers; the plot is a mere canvas and no more.

V. Independence of the interest on the story as the ground work of the plot; hence Shakespeare never took the trouble of inventing stories.

VI. Interfusion of the lyrical; that which in its very essence is poetical, not only with the dramatic—as in the plays of Metastasio, when at the end of the scene comes the *aria* as the *exit* speech of the character—but also in and through the dramatic.

VII. The characters of the *dramatis personæ*, like those in real life, are to be inferred by the reader—they are not told to him.—And lastly:

VIII. In Shakespeare the heterogeneous is united as in nature. You must not suppose a pressure or passion always acting on or in the character;—passion in Shakespeare is that by which the individual is distinguished from others, not that which makes a different kind of him. Shakespeare followed the main march of the human affections. He entered into no analysis of the passions or faiths of men, but assured himself that such and such passions and faiths were grounded in our common nature, and not in the mere accidents of ignorance or disease. This is an important consideration, and constitutes our Shakespeare the morning star, the guide and the pioneer, of true philosophy.

I have given you, somewhat at length, the principles laid down by Coleridge in his Shakesperian criticisms, and must refer you to his own writings for their detailed application to the various plays. It will at once be seen how these principles differed from those of his predecessors, and the advance which was thus made in the art of criticism. These principles are now no longer new, but have become practically familiar to every one of us; and we are accustomed to look with more reverence, not only on the writings of Shakespeare himself, but on those of all our great poets, with a hearty desire to discover their meaning in passages which we did not understand at first, doing them the justice to believe that if they possessed more genius than other men, they were not therefore void of common sense. Much of the enlightened appreciation which is now shown for Shakespeare is undoubtedly due to the writings of the German critics, and to Schlegel in particular. We must, however, remember that the lectures of Coleridge were delivered two years before those of Schlegel, and that as regards him, therefore, these principles were original in the mind of Coleridge. It does seem strange that nature, which has provided this island with such marvellous poets, should hitherto have so ill provided us with critics, and the appearance, therefore, of Coleridge, and his labours in this department of literature should be the more gratefully remembered. He who points out to us beauties, which were before unobserved, adds as it were a new power to the mind, and opens up to us enjoyments of which we should otherwise remain deprived.

With regard to Wordsworth also, Coleridge rendered great service, in pointing out his merits, at a time when they had still to make their way with the public, and when his writings afforded matter for derision only to the *Edinburgh* and other reviews. The fame of Wordsworth, like that of Shakespeare himself, now stands on too lofty a pedestal to require support even from Coleridge himself; but we are all

aware that when these writings were first given to the world, they met with little favour from the unthinking many, or the blind guides who sought to direct them. One of the leading critics of the day commenced his article with a damnatory — “This will not do;” and other and inferior critics followed in his wake. The attempt of Wordsworth to restore poetry to its true simplicity; to arouse the feelings, by associating them with the natural objects around us; to enlist human sympathy for the daily cares, the tender affections, and the simple desires, even of the ignorant, the lowly and the poor — these objects, which he so nobly achieved, were derided and condemned by the self-elected judges of the hour. But the purer taste and clearer judgment of Coleridge saw their error, and pointed out the true merits of Wordsworth, and this too without allowing his partiality to mislead him; for with true kindness and perfect accuracy he at the same time discerned and censured the characteristic faults which Wordsworth displayed. It is, in fact, curious to note, how completely the judgment of Coleridge on these points has been confirmed by later critics; and were it desired to find a statement of the comparative faults and beauties of the poet now under consideration, probably no calmer and more accurate judgment could be found than the one in Coleridge’s sketches. He does ample justice to the poet’s excellencies, and points them out in detail. He praises the austere purity of his language, both grammatically and logically:—a merit of no slight importance, considering the close connexion between veracity and habits of mental accuracy. He points attention to the weight and sanity of the thoughts and sentiments, drawn direct from the poet’s own meditative observation. He refers to the strength and beauty, the choice felicity of his diction, as shown in many a line, and many a verse. He recognises the perfect truth of nature in his images; proving the long and genial intimacy which

Wordsworth possessed with the very spirit which gives the expression to all the works of nature. He did homage to that highest excellence, even of poetic genius itself, the union of deep and subtle thought with sensibility—the sympathy with man as man—which was so preeminently the characteristic of Wordsworth. Nor, lastly, did he fail to claim for the poet the gift of imagination, in the highest and strictest sense of the word; boldly asserting, that in the power of this faculty, he stood above all modern writers, and with an originality which was entirely his own.

This brief sketch will enable us, in some degree, to judge of the analytic power which Coleridge brought to bear on the works which formed the subjects of his criticisms, and might, indeed, be referred to as an example and a model for critics to imitate, especially with reference to his endeavour always to understand his author before pronouncing his judgment.

But it was not only in the power which he possessed of appreciating the poetical productions of others that Coleridge claims our attention. He was himself a poet of a very high order. The time has long passed when sneers can be allowed at the “Lake Poets,” as Wordsworth, Coleridge, and Southey were termed; and the two former, at all events, have taken a place in English literature from which they are not likely to be deposed. The influence of Wordsworth has gone on increasing from year to year; and the admiration for Coleridge has not lagged behind. The taste and the genius of Coleridge inclined him to that pure love of nature which we now look for in every true poet; and he well knew—

“That Nature ne’er deserts the wise and pure.
 No plot so narrow, be but Nature there,
 No waste so vacant, but may well employ
 Each faculty of sense, and keep the heart
 Awake to Love and Beauty.”

That he was no servile imitator of Wordsworth is shewn by the circumstance, that the larger portion of his poetical works were composed before he was acquainted with Wordsworth, and before his writings were given to the world; and yet there is apparent in them that return from conventionalism to nature, for which the present age is so much indebted to these two writers. They both alike possessed a wonderful power of associating feelings with the external forms of nature, and by this means of making the feelings more intense, and more readily communicable to others. How thoroughly Coleridge associated his deeper feelings with every form of nature by which he was surrounded, is beautifully described in those touching lines, in his *Fears in Solitude*, when he thus apostrophises his native land:—

“O native Britain! O my Mother Isle!
 How shouldst thou prove aught else but dear and holy
 To me, who, from thy lakes and mountain-hills,
 Thy clouds, thy quiet dales, thy rocks and seas,
 Have drunk in all my intellectual life,
 All sweet sensations, all ennobling thoughts,
 All adoration of the God in nature,
 All lovely and all honourable things—
 Whatever makes this mortal spirit feel
 The joy and greatness of its future being?
 There lives nor form nor feeling in my soul
 Unborrowed from my country. O divine
 And beauteous Island! thou hast been my sole
 And most magnificent temple, in the which
 I walk with awe, and sing my stately songs,
 Loving the God that made me.”

There exist but few purely descriptive passages in Coleridge's poetry, which belongs rather to the class termed subjective, than to the descriptive or objective school. This constitutes to many a charm, and is found a difficulty by others. It is contended by some, that a poet should narrate

events, or picture scenes, and excite within his reader, by an involuntary process, the feelings he desires to produce; while others prefer that the poet should at once unfold the emotions by which he himself is moved, and arouse them in others through the natural operation of the law of sympathy or association. The metaphysical nature of the mind of Coleridge inclined him in the latter direction; and it is not improbable that his early attachment to the system of Hartley may have had its influence in this matter. The accusation, however, of being metaphysical has been freely urged against him by unfriendly critics, or jealous rivals; and, no doubt, this characteristic of his writings renders them less interesting to a certain class of readers. They are, however, less metaphysical than the writings of Shelley, and, though inferior to his in power of imagination, are superior to them in all that relates to the affections. No one can carefully peruse the whole of his poetical writings, without being deeply impressed with that spirit of benevolence—that love for his species, which pervades them throughout; and they are at the same time free from that oblivion of God, and that contempt for man, which respectively characterise Shelley and Byron.

In that most difficult of all forms of poetry—the Ode, Coleridge has achieved the greatest success; and his three odes, *France*, *The Departing Year*, and *Dejection*, are noble contributions to our literature. It requires a refined and cultivated taste to appreciate an ode, or a sonnet; few, indeed, are the writers, and rare the specimens, which satisfy the critical judges of these compositions. It is indeed no small praise to say of any man, that he has produced three such compositions, each of the highest order. Undoubtedly, the best of these is *France*, pronounced by Shelley “the finest English ode of modern times.” It is, in the truest sense, grand; and none who read it can remain

unmoved by the fire which it exhibits. It sweeps you along with its majesty, and yet possesses the power of satisfying the calmest judgment. When the fever excited in the minds of sanguine men by the first outburst of the great French revolution had passed away, and they beheld the excesses to which it had led, and the violence of its promoters, no doubt there was a revulsion in the minds of many which led them to regret the sympathy they had felt for its early movements. Coleridge was one of these; and, appealing to all the elements around him, could ask—

“When France in wrath her giant limbs upreared,
And with that oath which smote air, earth, and sea,
Stamped her strong foot, and said she would be free,
Bear witness for me, how I hoped and feared.”

But soon, alas! he found these hopes unfulfilled, and those fears accomplished. It is for ever true:—

“The Sensual and the Dark rebel in vain,
Slaves by their own compulsion! In mad game
They burst their manacles, and wear the name
Of Freedom, graven on a heavier chain.”

Well might he invoke the spirit of Freedom to forgive the dreams in which, along with so many others, he had indulged.

This ode, along with the other two previously named, is strongly recommended for perusal by those who may not already be familiar with the poetry of Coleridge. Among other pieces may also be named, *Fears in Solitude*, *The Nightingale*, *Reflections on having left a Place of Retirement*, and the magnificent *Hymn before Sunrise in the Vale of Chamouni*, of which Professor Wilson declared, “that he doubted if there be any single strain equal to it in Milton or Wordsworth: if there be, it is Adam’s hymn in Paradise.” I shall not trouble you with

quotations from these poems, which is seldom a satisfactory mode of doing justice to an author, but must leave them for your quiet enjoyment when time and opportunity serve; the present object being rather to point out the wide field which was covered by the genius of Coleridge, and the excellence he attained therein.

While speaking on this subject two pieces will at once have occurred to the recollection of every one—*Christabel* and the *Ancient Mariner*, on which it is necessary to say but little, as they are so generally known. It may, however, be well to know the object which the writer had in view in composing these productions. By an arrangement with Wordsworth, who proposed as his object to give the charm of novelty to the things of every day, drawing his subjects from ordinary life, and taking such characters and incidents as are to be found in every village and its vicinity, Coleridge undertook the contribution of some poems in which the incidents and agents were to be, in part at least, supernatural, or at least romantic, and the affections were to be interested by the dramatic truth of just emotions thus excited. The result of this arrangement was the production of these two poems, which have established for themselves a permanent place in our literature, and are sufficient for the fame of the author. Each one will remember the spell exercised over him by the first perusal of the *Ancient Mariner*, which loses none of its freshness by familiarity, and none of its interest by repetition. *Christabel* is a beautiful fragment, though incomplete, and must be regarded in the light of a fairy dream, where much is left vague and indistinct for the express purpose of raising the imagination and exciting curiosity. It were vain to inquire the source of the influence which the Lady Geraldine exercises over the beautiful *Christabel*, or to seek to know who she was and whence she came. Enough that she appears on the scene, and in some myste-

rious way has power to move the "lovely Lady Christabel." Time will not allow for more to be said of these two exquisite productions, and it can scarcely be needed; it was, however, impossible to omit all reference to them.

In addition to his own original contributions to poetry, Coleridge is well known as a translator from the German of the dramas of Schiller, *Piccolomini* and *The Death of Wallenstein*. These productions, which are regarded in Germany as among the master-pieces of German literature, have by this means been rendered familiar to most English readers, and have afforded delight and instruction to many. There are those among us well qualified to judge of the fidelity of the translation and the justice which has been done to the original author. Even those who cannot so judge may well infer, from the charm found in the translation, that either a faithful rendering is given of a genuine work of art, or that the translator himself has manifested genius of no common order. These translations are ranked among the very best we possess in our language of any works of modern Continental literature, and have had their influence in promoting the study of the original language wherein such compositions have been written.

This faint outline of the range of Coleridge's genius will, in some respect, enable us now to judge of the position he holds in the world of letters, and the influence he has exercised over later writers. The main object of this Paper will have been served, if some assistance has been rendered in the solution of a question which is often asked, viz., Has the influence of Coleridge on modern thought been extensively beneficial? The conclusion, one would think, cannot be other than in the affirmative. When we regard the scope and objects of the teaching of Coleridge,—the

firm grasp of first principles which he possessed,—the extent and variety of his learning,—the acuteness and subtlety of his mind,—we cannot but recognise him as one of the master spirits of the age; and when we review the service he has rendered in the various departments of Metaphysics, Theology, Politics, Criticism and Poetry, we can scarcely dissent from the conclusion, that the influence of Coleridge on these great questions has been beneficial to mankind to an extent which has hardly been exceeded by any of his cotemporaries.

FOURTEENTH ORDINARY MEETING.

ROYAL INSTITUTION, April 30th, 1866.

Dr. NEVINS, V. P., in the Chair.

Ladies were present at this meeting on the invitation of the Council.

The minutes of the last meeting were read and signed.

Dr. Praag was duly elected an ordinary member. Cuthbert Collingwood, M.A. and M.B. Oxon., F.L.S., &c., was duly elected an honorary member.

Mr. T. J. MOORE exhibited and made some remarks upon the mounted skeleton of the Dodo, formed from the series of bones from Mauritius collected by Mr. Harry P. Higginson, and presented by him (through the kind offices of Mr. James P. Higginson) to the Derby Museum, and which in their dismounted state were brought before a recent meeting of the society. The skeleton needed only the hinder part of the cranium, the toe bones, and a few ribs and vertebræ to make it perfect. The *furculum* and a few other bones had been lent to Professor Owen, to aid him in the preparation of his forthcoming monograph on this extinct bird.

The following note was received with these valuable and most interesting remains:—

“ MAHEBOURG, MAURITIUS,

“ *November 5th, 1865.*

“ The accompanying bones, belonging without doubt to the Dodo, were found in a *peat bog*, within a mile of the sea

coast, and owe their wonderful state of preservation, I fancy, to the well known preserving qualities of peat.

“These bones must be at least two hundred years old, as I believe the Dodo has been extinct for that length of time.

“Though once the Dodo was to be found anywhere in Mauritius, no bones have ever been found up to within the last five weeks. They were found in the following manner :

“Mr. Du Bissy, the owner of the bog (called the *Mare des Songes*) in which the bones were found, had a lot of the peat soil taken out for manure ; some bones having been found, Mr. Clarke’s attention was called to them. They proved to be the bones of a species of Turtle, now extinct in Mauritius. He prosecuted a fresh search, and found the bones of the Dodo, which have, I believe, been sent to the British Museum. I had men searching for them in conjunction with him, and succeeded in finding a great many bones that were still wanting to complete a skeleton.

(Signed)

“HARRY P. HIGGINSON.”

Dr. GINSBURG then read the following paper—on “The English Versions of the Bible, in their connexion with the Ancient Translations.”

PROCEEDINGS

OF THE

LITERARY AND PHILOSOPHICAL SOCIETY

OF

LIVERPOOL,

DURING THE

FIFTY-SIXTH SESSION, 1866-67.

No. XXI.



LONDON:

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LIVERPOOL:

DAVID MARPLES, LORD STREET.

—
1867.

This Volume has been edited by the Honorary Secretary.

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The Authors alone are responsible for facts and opinions.

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- Jan. 11, 1864 Bagshaw, John, 87, *Church-street*, and *Canning-terrace*,
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- April 17, 1865 Baker, W. J., 24, *Fenwick-street*.
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- Oct. 29, 1866 Bell, David, 15, *Tithebarn-street*, and 189, *Grove-street*.
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sands, Great Crosby.
- March 9, 1857 Bell, Christopher, *Moor-st.*, and 60, *Bridge-st., B'head*.
- Dec. 10, 1866 Benas, Baron Louis, Banker, 5, *South Castle-street*.
- Nov. 14, 1864 Bennett, J. M., *St. George's-place, Lime-street*, and
109, *Shaw-street*.
- Feb. 6, 1854 Bennett, William, *St. George's-place, Lime-street*, and
Lancaster.
- Nov. 2, 1863 Billson, Alfred, 10, *Cook-street*, and 5, *Cavendish-road*,
Birkenhead Park.
- Oct. 31, 1859 Birch, Jas., 13, *The Temple, Dale-street*.
- Jan. 25, 1864 Birchall, James, Governor of the *Liverpool Industrial*
Schools, Kirkdale. HON. SECRETARY.
- Nov. 12, 1866 Birkenhead, E. H., Doct. Sci., 69, *Whitefield-road*.
- April 15, 1861 Blake, James, 63, *Kitchen-street*, and 45, *Canning-st.*
- Mar. 9, 1866 Blood, William, *Chamber of Commerce*.
- Nov. 26, 1866 Boulton, Jos., 24 *North John-street*.
- *Mar. 6, 1835 Boulton, Swinton, 1, *Dale-st.*, and 3, *Bedford-st. South*.
- Jan. 12, 1863 Bolton, Ogden, *Prince's Buildings, Harrington-st.*,
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- Nov. 27, 1865 Biggs, Arthur Worthington, *Brown's Buildings*, and 76,
Upper Huskisson-street. (I. Cook and Sons.)
- Oct. 21, 1844 Bright, Samuel, 1, *North John-street*, and *Sandheys*,
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- *Jan. 8, 1855 Brockholes, James Fitzherbert, *Puddington Old Hall*,
near Neston.
- Oct. 31, 1864 Bromham, William, 57, *South John-street*, and 8,
Montpellier-terrace, Upper Parliament-street.
- Oct. 29, 1866 Brown, Rev. H. Stowell, *Windsor-terrace, 274, Upper*
Parliament-street,

- Dec. 2, 1861 Browne, G. Mansfield, 15, *Fenwick-street*, and 15, *South-hill-road, Toxteth Park*.
- Nov. 12, 1866 Browne, Edgar A., 83, *Everton-road*.
- April 21, 1862 Bulley, Samuel, *Borough Buildings*, and *East Lodge, Prince's Park*.
- Feb. 4, 1867 Burden, Edward, 79, *Upper Parliament-street*.
- April 18, 1864 Burne, Joseph, *Royal Insurance Office*, 1, *North John-street*, and *Higher Tranmere*.
- Nov. 12, 1866 Butler, Rev. G., M.A. Oxon, *The College, Liverpool*.
- Mar. 9, 1863 Buxton, David, F.R.S.L., Principal of the School for the Deaf and Dumb, *Oxford-street*.
- *May 1, 1848 Byerley, Isaac, F.L.S., F.R.C.S., *Victoria-road, Seacombe*, TREASURER.
- Oct. 29, 1866 Byramjee, Dadabhoy, 14, *Cook-street*.
- Feb. 23, 1863 Callon, W. J., M.D., 125, *Islington*.
- Nov. 3, 1862 Cameron, John, M.D., M.R.C.P., Physician to the Southern Hospital, and Lecturer on Medicine at Royal Inf. Sch. of Med., 17, *Rodney-street*.
- April 7, 1862 Campbell, John, *Liverpool and London Chambers*, and *Oak House, Aigburth-hall-road*.
- Jan. 9, 1865 Cariss, Astrup, *Cook-street*, and 6, *Hope-place*.
- April 7, 1862 Cawkitt, James M., *Underwriters' Room, Exchange*, and 23, *Queen's-road, Everton*.
- Dec. 2, 1861 Chadburn, William, 71, *Lord-street*.
- Dec. 1, 1851 Clare, John Leigh, 11, *Exchange-buildings*, and *The Old Hall, Aigburth-road*.
- Oct. 31, 1859 Clark, Charles, 17, *North John-street*, and *Linden Cottage, Rock Ferry*.
- Jan. 26, 1857 Clay, William, 97, *Sefton-street*, and 4, *Parkhill-road*.
- Jan. 22, 1866 Cohen, Lewis, S., 44, *Ranelagh-street*.
- Jan. 26, 1863 Commins, Andrew, LL.D. Dub., *Clarendon-chambers*, 1, *South John-street*.
- Jan. 22, 1850 Cox, Henry, 21, *Exchange-alley*, and *Waterloo*.
- Oct. 6, 1862 Crosfield, Wm., jun., 28, *Temple-st.*, and *Alexandra-drive, Ullett-road*.
- Nov. 26, 1866 Curtis, Rev. F. H., M.A. Oxon, *The College, Shaw-st.*
- Feb. 8, 1864 Cuthbert, J. R., 40, *Chapel-street*, and 40, *Huskisson-street*.
- Nov. 2, 1863 Dawbarn, William, *The Temple, Dale-street*, and 99, *Shaw-street*.

- Oct. 1, 1866 Dawson, Thos, *Rodney-street*.
- Nov. 12, 1866 Davies, E., F.C.S., *The Laboratory, Roy. Inst., Colquitt-street*.
- Nov. 27, 1848 Dove, Percy Matthew, F.S.S., 1, *North John-street, and Claughton*.
- Nov. 27, 1863 Dove, Jno. M., *Royal Insurance Office, and Claughton*.
- Jan. 23, 1848 Drysdale, John James, M.D. Edin., M.R.C.S. Edin., 44, *Rodney-street*.
- Oct. 5, 1863 Drysdale, W. G., 7, *Elm-terrace, Beech-street, Fairfield, and 14, East side Queen's Dock*.
- Jan. 7, 1867 Drysdale, Donald M., 7, *Newbie-terrace*.
- Feb. 4, 1856 Duckworth, Henry, F.L.S., F.R.G.S., F.G.S., 5, *Cook-street, and 2, Gambier-terrace*.
- *Nov. 27, 1848 Edwards, John Baker, Ph.D. Gies., F.C.S., *Canada*.
- Oct. 29, 1866 Elliot Adam, *Ashlea, Aigburth-road*.
- March 10, 1862 Ellison, Christopher O., *Adelphi-chambers, South John-street, and Esplanade, Waterloo*.
- April 7, 1862 English, Charles J., 26, *Chapel-st.*, and 26, *Falkner-sq.*
- Feb. 20, 1865 English, C. R., 26, *Falkner-square*.
- Dec. 14, 1863 Erskine, Robert.
- Nov. 27, 1865 Estill, Fred. Chas., 1, *Liverpool and London Chambers*.
- April 30, 1860 Fabert, John Otto William, 1, *Parliament-street, and 3, St. James' Mount*.
- Feb. 18, 1866 Fairclough, Rev. R. J., M.A. Cantab., 44, *Irvine-st., Edge-hill*.
- Oct. 31, 1864 Fearenside, William, 5, *Cook-street, and Seacombe*.
- *Dec. 13, 1852 Ferguson, William, F.L.S., F.G.S., *Oriel-chambers, and 2, St. Aidan's-terrace, Birkenhead*.
- Feb. 9, 1863 Finlay, William, Senior Mathematical Master, Middle School, *Liverpool College, and 49, Everton-road*.
- *April 3, 1837 Fletcher, Edward, 4, *India-buildings, and 31, High Park-street*.
- Oct. 1, 1866 Fletcher, Alfred, H.M. Inspector of Alkali Works for the Western District; *Whiston, Prescott*.
- Nov. 26, 1866 Flück, Christian, 1, *Montpelier-terrace., Upper Parliament street*.
- *Mar. 19, 1855 Foard, James Thomas, 5, *Essex-court, Temple, E.C.*
- *Feb. 6, 1854 Gee, Robert, M.D. Heidelb., M.R.C.P., Lecturer on Diseases of Children, Royal Infirmary School of Med.; Physician, Workhouse Hospital; 5, *Abercromby-square*.

- Jan. 21, 1867 Gibson, Thomas, jun., *Beech-mount, Beech-st., Fairfield.*
- March 4, 1861 Ginsburg, Rev. Christian D., LL.D. Glasg., *Brooklea, Aigburth-road.* PRESIDENT.
- Feb. 20, 1865 Gordon, Rev. A., M.A., 49, *Upper Parliament-street.*
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- Oct. 5, 1863 Gray, Jno. M'Farlane, *Vauxhall Foundry, and 80, Prince Edwin-street.*
- Nov. 14, 1853 Greenwood, Henry, 32, *Castle-street, and Falkner-sq.*
- Jan. 22, 1855 Hakes, James, M.R.C.S., Surgeon to the Northern Hospital, *Hope-street.*
- Nov. 12, 1867 Halhed, W. B., 7, *Parkfield, Prince's Park.*
- Feb. 23, 1863 Hall, Charlton R. 17, *Dale st., and 111, Shaw-st.*
- Dec. 16, 1866 Hall, Hugh Fergie, Messrs. Charlton R. Hall & Co., *Dale-street.*
- Feb. 18, 1867 Hallet, ———, M.D., S.S. "City of New York." (Inman Line.)
- *Jan. 21, 1856 Hardman, Lawrence, 5, *India-buildings, and Rock Park, Rock Ferry.*
- Feb. 9, 1863 Hart, Thos. Aubrey, M.A. Oxon, 81, *Bedford-street South.*
- Feb. 6, 1865 Hassan, Rev. E. *Alma-terrace, Sandown-lane.*
- Nov. 13, 1865 Hayward, John Williams, M.D., 15, *Mount Vernon-road.*
- Feb. 6, 1865 Hebson, Douglas, 13, *Tower-chambers, and 58, Bedford-street South.*
- March 4, 1867 Hewetson, Jos., 171, *Upper Parliament-street.*
- March 6, 1865 Hey, John, M.R.C.S., 126, *Islington.*
- Dec. 28, 1846 Higgins, Rev. H. H., M.A. Cantab., F.C.P.S., *Rainhill.* VICE PRESIDENT.
- *Oct. 31, 1836 Higginson, Alfred, M.R.C.S., Surg. Southern Hosp., 44, *Upper Parliament-street.*
- Nov. 16, 1863 Holden, Adam, 48, *Church-street, and 6, Carlton-terrace, Milton-road.*
- Nov. 13, 1854 Holland, Charles, 70, *Tower-buildings South, and Liscard-vale, New Brighton.*
- *Dec. 14, 1862 Holt, Robert Durning, 6, *India-buildings, and 2, Rake-lane.*
- Nov. 26, 1866 Hopps, Alfred, 5, *Somerville, Seacombe.*
- March 22, 1847 Horner, Henry P., 2 *Derby-square, and 5, Devonshire-road, Prince's Park.*

- Jan. 9, 1855 Howse, Rev. E., 4, *Bold street, Southport.*
- Nov. 28, 1864 Humphreys, William, *Vauxhall Foundry.*
- *Nov. 13, 1854 Hunter, John, Member Hist. Society, Pennsylvania,
Halifax, Nova Scotia.
- Jan. 13, 1862 Hutchison, Robert, *Barned's-buildings, Sweeting-street,*
and 6, Canning-street.
- Jan. 26, 1857 Hutton, David, 3, *St. George's-crescent,* and 61, *Canning-*
street.
- *April 29, 1850 Ihne, William, Ph. D. Bonn, *Villa Felseck, Heidelberg.*
- Feb. 23, 1857 Imlach, Henry, M.D. Edin., 1, *Abercromby-square.*
- Nov. 14, 1864 Imlach, Henry, jun., 1, *Abercromby-square.*
- *Oct. 21, 1844 Inman, Thomas, M.D. London, M.R.C.P., Physician
Royal Infirmary, 12, *Rodney-street,* and *Spital,*
Cheshire.
- Nov. 28, 1864 Jeffery, F. J., *Compton House,* and *Woolton Hall,*
Woolton.
- March 10, 1862 Johnson, Richard, *Queen Insurance Buildings,* and
Brookfield House, Seaforth.
- Jan. 26, 1863 Johnson, Richard jun., *Queen Insurance-buildings.*
- *April 4, 1852 Jones, Morris Charles, *Queen Insurance-buildings,* and
75, *Shaw-street.*
- May 5, 1851 Jones, Roger Lyon, *Liverpool and London-chambers,*
Exchange, and 6, *Sunnyside, Prince's Park.*
- April 2, 1866 Jones, Rev. J. S., 3, *Clare-street.*
- Nov. 26, 1866 Jones, Ed., B.A., 1, *May-street,* Head Master of
Hibernian School.
- Oct. 2, 1865 Kendal, Robinson, 15, *Water-street.*
- Feb. 19, 1855 King, Alfred, 14, *Newington,* and 9, *Netherfield-road*
South.
- Jan. 10, 1848 Lampion, William James, 21, *Water-street,* and 5,
Beech-terrace, Beech-street, Fairfield.
- *Jan. 14, 1839 Lassell, William, F.R.SS. L. and E., F.R.A.S., 27,
Milton-street.
- April 27, 1862 Lassell, William, jun., 27, *Milton-street,* and *Tuebrook.*
- Oct. 21, 1844 Lear, John, 14, *Cook-street,* and 22, *Holland-terrace,*
Duke-street, Edge Hill.
- Feb. 10, 1862 Leycester, Edmund Mortimore, Commander R.N.,
Admiralty Office, 2, *Drury-lane,* and 20, *Belvedere-*
road, Prince's Park.
- Dec. 10, 1860 Leyland, Joseph, *Williamson-square.*

- May 4, 1863 Lister, James, *Union Bank*, 6, *Brunswick-street*, and *Greenbank*, 166, *Breckfield-road North*.
- Nov. 26, 1866 Long, Rev. R. England, 27, *Danube-st.*, *Smithdown-rd*.
- Oct. 20, 1859 M'Andrew, James Johnston, 24, *North John-street*, and *Greenfield Cottage*, *Bromborough*.
- *Oct. 21, 1844 M'Andrew, Robert, F.R.S., F.L.S., *Isleworth House*, *Isleworth*, *London*.
- April 17, 1865 MacCheane, Wm., M.R.C.S., 69, *Shaw-street*.
- March 9, 1857 MacFie, Robert Andrew, 30, *Moorfields*, and *Ashfield Hall*, *Neston*, *Cheshire*.
- April 2, 1866 McMullen, James A., *Huyton*.
- April 20, 1863 Marples, David, 50B, *Lord-street*, and 168, *Chatham-st*.
- Jan. 21, 1839 Martin, Studley, 30, *Exchange*, and 109, *Bedford-st. S*.
- Feb. 5, 1844 Mayer, Joseph, F.S.A., F.R.A.S., F.E.S., 68, *Lord-street*, and *Pennant's House*, *Lower Bebington*.
- Feb. 18, 1867 Maye, Rev. H. S., B.A., Lond., *The College*, *Liverpool*; 63, *Everton Road*.
- Jan 12, 1863 Mellor, Rev. Enoch, M.A., 18, *Devonshire-rd.*, *Prince's Park*.
- April 1, 1861 Melly, George, 7, *Water-street*, and 90, *Chatham-street*.
- Oct. 31, 1859 Moore, Thomas John, Corr. Mem. Z.S., Curator Free Public Museum, *William Brown-street*.
- Nov. 10, 1866 Moore, Rev. W. Kennedy, M.A., 67, *Grove-street*.
- Jan. 8, 1855 Morton, George Highfield, F.G.S., 9, *London-road*.
- April 16, 1849 Moss, Rev. John James, B.A., *Upton*, *Cheshire*.
- Oct. 29, 1850 Mott, Albert Julius, *Church-street*, and 51, *Rodney-street*.
- April 3, 1854 Mott, Charles Grey, 27, *Argyle-street*, *Birkenhead*.
- Nov. 27, 1865 Mountfield, William, 301, *Upper Parliament-street*.
- Oct. 20, 1856 Nevins, John Birkbeck, M.D. Lond., M R.C.S , Lect. on *Materia Medica*, Royal Infirmary School of Medicine, 25, *Oxford-street*. VICE PRESIDENT.
- April 7, 1862 Newlands, A., 6, *Rumford-Place*, and 19 *Peel-terrace*, *Upper Canning-street*.
- Feb. 6, 1865 Newton, John, M.R.C.S., 13, *West Derby-street*.
- *Nov. 29, 1847 Nisbet, William, L.F.P.S.G., *Church-street*, *Egremont*.
- *Oct. 15, 1855 North, Alfred, 20, *York Crescent*, *Clifton*.
- Nov. 18, 1861 Nugent, Rev. James, *Crosby*.
- Dec. 11, 1865 Odgers, Rev. J. Edwin, 25, *Falkner-street*.
- *Dec. 10, 1866 Owen, Peter, Messrs. Farnworth & Jardine, 9, *Canada Dock*.

- Nov. 4, 1861 Philip, Thomas D., 49, *South Castle-street*, and 47, *Prospect-vale, Fairfield*.
- Dec. 28, 1846 Picton, James Allanson, F.S.A., Chairman of the Library and Museum Committee, 11, *Dale-street*, and *Sandy-knowe, Wavertree*. VICE PRESIDENT.
- April 30, 1866 Praag, Rev. James, 29, *Mount-street*.
- Feb. 6, 1854 Prange F., *Royal Bank-buildings, Dale street*, and 2, *Grove Park, Lodge-lane*.
- Jan. 22, 1866 Raffles, William Winter, 54, *Brown's Buildings*, and *Sunnyside, Prince's Park*.
- April 7, 1862 Rankin, Robert, Chairman of the Dock Board, 55, *South John Street*, and *Brombro' Hall, Cheshire*.
- †Mar. 13, 1812 Rathbone, William, 21, *Water-street*, and *Greenbank, Wavertree*.
- Nov. 12, 1860 Rathbone, Philip H., 4, *Water-street*, and *Greenbank cottage, Wavertree*.
- Mar. 24, 1862 Rathbone, Richard Reynolds, 21, *Rumford-place*, and *Laurel Bank, St. Michael's-road*.
- *Jan. 7, 1856 Rawlins, Charles Edward, jun., 23, *Cable-street*, and 1, *Windermere-terrace, Prince's Park*.
- *Nov. 17, 1851 Redish, Joseph Carter, 18, *Chapel-street*, and 15, *Sandon-street*.
- Nov. 2, 1840 Robberds, Rev. John, B.A., 58, *High Park-street*.
- Jan. 25, 1864 Roberts, Fred. T., M.B., B.Sc. London, M.R.C.S., *Northern Hospital*.
- Dec. 10, 1866 Roberts, Rev. R. H., B.A., *Litherland-road, Bootle*.
- Feb. 4, 1867 Robinson, Jos. F., 5, *Bagot-street, Wavertree*.
- Feb. 9, 1863 Ronald, Lionel K., 19, *Dale-street*, and *Broad Green*.
- April 18, 1854 Rowe, James, 16, *South Castle-st.*, and 105, *Shaw-st.*
- Feb. 6, 1865 Rowlandson, William, jun., *Vauxhall Foundry*.
- Feb. 20, 1865 Samuel, Albert H., 52, *Hanover-street*, and *Canning-terrace, Upper Parliament-street*.
- April 16, 1866 Samuel, Charles S., 14, *Canning-street*.
- April 7, 1862 Samuel, Harry S., 11, *Orange-court*, and 2, *Canning-st.*
- Nov. 13, 1864 Samuelson, Edward, 54, *Hanover-street*, and *Huyton*.
- Jan. 11, 1864 Samuelson, James, 18, *Dale-street*, and *New Brighton*.
- March 19, 1866 Sephton, Rev. John, M.A., *Liverpool Institute*.
- Nov. 16, 1863 Sheldon, E. M., M.R.C.S., 256, *Vauxhall-road*.
- Oct. 29, 1866 Shimmin, Hugh, 21, *North John-street*, and *Tue-brook, West Derby*.

- Nov. 2, 1863 Skillicorn, John E., *Whitley-terrace*, 206, *Walton-road*.
- Nov. 7, 1864 Skinner, Thomas, M.D. Edin., 1, *St. James's Road*.
- *April 21, 1862 Smith, James, *Barkeley House*, *Seaforth*, and 7, *Water-street*.
- †Mar. 13, 1812 Smith, James Houlbroke, 28, *Rodney-street*, and *Greenhill*, *Allerton*.
- Feb. 23, 1863 Smith, J. Simm, *Royal Insurance Office*, *North John-street*.
- Dec. 10, 1866 Smith, Elisha, Messrs. Henry Nash & Co., 5, *India-buildings*.
- Jan. 7, 1867 Smith, Caleb Jun., 21, *Oxford-street*.
- Feb. 24, 1862 Snape, Joseph, Lecturer on Dental Surgery, Royal Infirmary School of Medicine, 75, *Rodney-street*.
- Nov. 12, 1860 Spence, Charles, 4, *Oldhall-street*.
- Feb. 10, 1862 Spence, James, 5, *Fenwick-st.*, and 10, *Abercromby-sq.*
- Nov. 27, 1865 Spola, Luigi, LL.D., 1, *Lully-Street*, *Grove-street*.
- Jan. 22, 1866 St. Clair, Wm., 4, *Trafalgar-road*, *North Egremont*.
- Dec. 14, 1857 Steele, Robert Topham, 4, *Water-street*, and *Wavertree*.
- Nov. 12, 1866 Stephenson, Rev. H. M., M.A. Cantab., *The College*, *Liverpool*.
- Jan. 9, 1865 Stewart, Robert E., L.D.S., R.C.S., Dental Surgeon Southern Hospital, and Liverpool Dental Hospital, 37, *Rodney-street*.
- Oct. 18, 1858 Stuart, Richard, 10, *Exchange-street East*, and *Brooklyn Villa*, *Breeze-hill*, *Walton*.
- *Feb. 19, 1855 Taylor, John Stopford, M.D. Aberd., F.R.G.S., 1, *Springfield*, *St. Anne-street*.
- Jan. 23, 1843 Taylor, Robert Hibbert, M.D. Edin., L.R.C.S. Ed., Lect. on Ophthalmic Medicine, Royal Infirmary School of Medicine, 1, *Percy-street*.
- Jan. 8, 1866 Thomson, James, 323, *Park-road*.
- Dec. 11, 1854 Thompson, Samuel H., *Thingwall Hall*, *Knotty Ash*.
- Nov. 17, 1850 Tinling, Chas., 44, *Cable-street*, and 34, *Onslow-road*, *Elm Park*.
- March 4, 1867 Topham, Jas. W., 156, *Chatham-street*.
- Dec. 1, 1851 Towson, John Thomas, F.R.G.S., Scientific Examiner, Sailors' Home, 47, *Upper Parliament-street*.
- Jan. 7, 1867 Trimble, Robt., *Riversdale-road*, *Aigburth*.
- *Feb. 19, 1844 Turnbull, James Muter, M.D. Edin., M.R.C.P., Phys. Royal Infirmary, 86, *Rodney-street*.

- Oct. 21, 1861 Unwin, William Andrew, 11, *Rumford-place*, and
Newbie-terrace.
- Feb. 6, 1865 Vernon, Thomas Holmes, *Woolton*.
- Oct. 21, 1844 Vose, James Richard White, M.D. Edin., F.R.C.P.,
Phys. Royal Infirmary, 5, *Gambier-terrace*.
- Mar. 18, 1861 Walker, Thomas Shadford, M.R.C.S., 30, *Rodney-street*.
- Jan. 27, 1862 Walmsley, Gilbert G., 50, *Lord-street*.
- Jan. 9, 1865 Walthew, William, *Phoenix Chambers*, and *Vine Cottage*,
Aughton.
- Dec. 2, 1861 Weightman, William Henry, *Leith Offices*, *Moorfields*,
and *Hapsford-lane*, *Litherland*.
- Nov. 28, 1864 Weld, Walter, 12, *Castle-st.*, & *Moor-lane*, *Great Crosby*.
- April 7, 1862 Whittle, Ewing, M.D., Lecturer on Med. Jurisprudence,
Royal Inf. Sch. of Med., 65, *Catherine-street*.
- Nov. 2, 1863 Whitty, W. Alfred, "*Daily Post*" Office, and 8,
Catherine-street.
- April 7, 1862 Willans, Thomas H., 82, *Rodney-street*.
- Mar. 18, 1861 Wood, Geo. S., 20, *Lord-st.*, and *Bellevue-rd.*, *Wavertree*.
- Dec. 14, 1863 Zwilchenbart, Rodolph, jun., *Queen Insurance Buildings*,
and 26, *Bedford-street South*.

HONORARY MEMBERS,

LIMITED TO FIFTY.

- 1.—1812 Peter Mark Roget, M.D. Edin., F.R.C.P., F.R.S., F.G.S.,
F.R.A.S., F.R.G.S., &c., 18, *Upper Bedford-
place, London.*
- 2.—1819 John Stanley, M.D. Edin, *Whitehaven.*
- 3.—1827 Rev. William Hincks, F.R.S.E., F.L.S., Professor of Natural
History in University College, *Toronto, C.W.*
- 4.—1828 Rev. Brook Aspland, *Dukinfield, Cheshire.*
- 5.—1833 The Right Hon. Dudley Ryder, Earl of Harrowby, K.G.,
D.C.L., F.R.S., *Sandon-hall, Staffordshire*, and
39, Grosvenor-square, London, W.
- 6.—1833 James Yates, M.A., F.R.S., F.L.S., F.G.S., &c., *Lauderdale
House, Highgate, London.*
- 7.—1835 George Patten, A.R.A., 21, *Queen's-road West, Regent's Park,
London.*
- 8.—1835 William Ewart, M.P., *Cambridge-square, Hyde-park, London.*
- 9.—1835 The Right Hon. Lord Brougham and Vaux, M.A., D.C.L.
F.R.S., Chancellor of the University of Edin-
burgh, 4, *Grafton-street, London, W.*, and
Brougham Hall, Penrith.
- 10.—1836 The Most Noble William, Duke of Devonshire, K.G., M.A.,
F.R.S., F.G.S., &c., Chancellor of the University
of Cambridge, *Devonshire House, London, W.*,
and *Chatsworth, Derbyshire.*
- 11.—1838 George Biddell Airy, M.A., D.C.L., F.R.S., Hon. F.R.S.E.,
Hon. M.R.I.A., V.P.R.A.S., F.C.P.S., &c.,
Astronomer Royal, *Royal Observatory, Green-
wich.*
- 12.—1840 James Nasmyth, F.R.A.S., *Penshurst, Kent.*
- 13.—1840 Richard Duncan Mackintosh, L.R.C.P., *Exeter.*
- 14.—1841 Charles Bryce, M.D. Glasg., Fell.F.P.S.G., *Brighton.*
- 15.—1844 J. Beete Jukes, M.A., F.R.S., M.R.I.A., F.G.S., Local Direc-
tor of the Geological Survey of Ireland, 51,
Stephen's-Green, Dublin.
- 16.—1844 T. P. Hall, *Coggeshall, Essex.*
- 17.—1844 Peter Rylands, *Warrington.*

- 18.—1844 John Scouler, M.D., LL.D., F.L.S., *Glasgow*.
- 19.—1844 Thomas Rymer Jones, F.R.S., F.Z.S., F.L.S., Professor of Comparative Anatomy, *King's College, London*.
- 20.—1844 Robert Patterson, F.R.S., M.R.I.A., *Belfast*.
- 21.—1854 Sir Charles Lemon, Bart. M.A. Cantab., F.R.S., F.G.S., *Penrhyn, Cornwall*.
- 22.—1844 William Carpenter, M.D. Edin., F.R.S., F.L.S., F.G.S., Registrar, *London University*.
- 23.—1848 Rev. Thomas Corser, M.A., *Strand, Bury*.
- 24.—1850 Rev. St. Vincent Beechy, M.A. Cantab., *Worsley, near Eccles*.
- 25.—1851 James Smith, F.R.S.S.L. and E., F.G.S., F.R.G.S., *Jordanhill, Glasgow*.
- 26.—1851 Henry Clarke Pidgeon, *London*.
- 27.—1851 Rev. Robert Bickersteth Mayor, M.A., Fell. St. John's College, Cantab., F.C.P.S., *Rugby*.
- 28.—1852 William Reynolds, M.D., *Coed-du, Denbighshire*.
- 29.—1853 Rev. James Booth, LL.D., F.R.S., &c., *Stone, near Aylesbury*.
- 30.—1857 Thomas Jos. Hutchison, F.R.G.S., F.R.S.L., F.E.S., H.B.M. Consul, *Rosario*.
- 31.—1861 Louis Agassiz, Professor of Natural History in Harvard University, *Cambridge, Massachusetts*.
- 32.—1861 William Fairbairn, LL.D., C.E., F.R.S., *Polygon, near Manchester*.
- 33.—1861 Rev. Thomas P. Kirkman, M.A., F.R.S., *Croft Rectory, Warrington*.
- 34.—1862 The Right Rev. H. N. Staley, D.D., Bishop of Honolulu, *Sandwich Islands*.
- 35.—1863 Edward J. Reed, Chief Constructor of H. M. Navy, *Admiralty, and Hyde Vale, Greenwich, S.E.*
- 36.—1865 John Edward Gray, Ph. D., F.R.S., &c., *British Museum*.
- 37.—1865 George Rolleston, M.D., F.R.S., Linacre Professor of Physiology in the University of Oxford, *Oxford*.
- 38.—1866 Cuthbert Collingwood, M.A. and M.B. Oxon, F.L.S.
- 39.—1867 J. W. Dawson, LL.D., F.R.S., F.G.S. &c., Principal and Vice-Chancellor of McGill University, *Montreal*.

CORRESPONDING MEMBERS.

LIMITED TO THIRTY-FIVE.

- 1.—1867 Albert C. L. G. Günther, M.A., M.D., Ph.D., British Museum,
Editor of the "Zoological Record."
- 2.—1867 J. Yate Johnson, *London*.
- 3.—1867 R. B. N. Walker, *Gaboon, West Africa*.

ASSOCIATES.

LIMITED TO TWENTY-FIVE.

- 1.—Dec. 2, 1861 Captain Sir James Anderson, "Great Eastern."
(Atlantic.)
- 2.—Jan. 27, 1862 Captain John H. Mortimer, "America," (Atlantic.)
- 3.—March 24, 1862 Captain P. C. Petrie, "City of London," Commo-
dore of the Inman Line of American Steam
Packets. (Atlantic.)
- 4.—Feb. 9, 1863 Captain James P. Anderson, R.M.S.S. "Africa,"
Cunard Service. (Atlantic.)
- 5.—Feb. 9, 1863 Captain John Carr, (Bushby and Edwards,) ship
"Scindia," (Calcutta.)
- 6.—Feb. 9, 1863 Captain Charles E. Price, R.N.R., (L. Young
and Co.) ship "Cornwallis." (Calcutta and
Sydney.)
- 7.—April 20, 1863 Captain Fred. E. Baker, ship "Nippon."
(Chinese Seas.)
- 8.—Oct. 31, 1864 Captain Thompson, ship "Admiral Lyons."
(Bombay.)
- 9.—Oct. 31, 1863 Captain Edward Berry, ship "Richard Cobden."
(Chili.)
- 10.—Oct. 31, 1864 Captain Alexander Browne, (Papayanni,) S. S.
"Agia Sofia." (Mediterranean.)

- 11.—Oct. 31, 1864 Captain Whiteway, ship "Annie Cheshyre."
(Pacific.)
- 12.—April 13, 1865 Captain Alexander Cameron, (Boult, English,
and Brandon,) ship "Staffordshire." (Shanghai.)
- 13.—Dec. 11, 1865 Captain Walker, ship "Trenton."

PROCEEDINGS
OF THE
LIVERPOOL
LITERARY AND PHILOSOPHICAL SOCIETY.

ANNUAL MEETING.—FIFTY-FIFTH SESSION.

ROYAL INSTITUTION, October 1st, 1866.

J. A. PICTON, Esq., F. S. A., PRESIDENT, in the Chair.

The Minutes of the last meeting of the fifty-fourth session having been read and signed, the Chairman expressed his congratulations to the members present upon their meeting once again for business, and called upon the Honorary Secretary to read the following

REPORT.

The Council rejoice in being able to open their report by the assurance that the Society during the past year has continued its career of success and improvement, and that, while the past session has added few events to its history, it has shown abundant evidence of the interest displayed by the members, and the usefulness of their exertions. The Nineteenth Volume of the Transactions, being the record of the preceding year, was placed in the hands of the members last spring, and the Council feel that this volume fully sustains the reputation of preceding years. The important contribu-

tion of Dr. Ginsburg, one of our Vice-Presidents, on "The Kabbalah," is contained therein, as it was impossible to publish it in the volume of the session during which it was read. The pagination of the paper, however, is continued from this volume, so as to enable members, so disposed, to have it bound up in its proper place. The volume for the present year is being proceeded with, though from various causes some time will elapse before it can be issued.

The number of members continues satisfactory, though it does not increase so much as could be desired in a town of such magnitude and importance as Liverpool. Of the one hundred and ninety-five ordinary members on the roll, at the commencement of the session, fourteen have been removed by death, resignation, and other causes, while eighteen new members have been elected, thus making the present number of ordinary members one hundred and ninety nine. The number of honorary members remains as before, thirty eight; the name of Sir William Rowan Hamilton having been removed by death, and the name of Dr. Collingwood, the former Honorary Secretary, having been added to the list. The Associates have been increased by one addition, and now number thirteen; the total number of the members, therefore, of all classes, now amounts to two hundred and fifty.

Some of the changes in the muster-roll cannot be passed over without special notice. The late Sir William Rowan Hamilton, Astronomer Royal of Ireland, and honorary member of this society since the year 1847, had won for himself the highest reputation as a man of science, and by his originality and power had secured a place amongst the greatest mathematicians of Europe. He will be remembered as one of the few who have furnished new methods for the advancement of mathematical science.

The Council have likewise to record the removal, by the death of one of our ordinary members, of a gentleman of high

scientific attainments, and an eminent authority on all matters connected with the construction of iron vessels and steam navigation—Mr. Charles Wye Williams, who, although prevented by age and the infirmity of deafness from taking an active part in the proceedings of the Society, yet contributed very recently several valuable communications, while the indefatigable industry with which he prosecuted his experiments in his private laboratory has done much to explode many errors, and to establish some new views of the nature of steam. As the originator of the City of Dublin Steam-packet Company, one of whose vessels was among the first to cross the Atlantic in 1837; as one of the chief promoters of the Peninsular and Oriental Company; as the inventor of water-tight compartments, and as one of the first to perceive the advantage of building ships of iron, he is justly entitled to the credit of possessing great and unusual foresight. Mr. Williams was the author of various scientific works: “On the Construction of Marine Steam Boilers;” “On the Steam-generating Power of Marine and Locomotive Boilers;” “On Heat, and its relation to Water and Steam,” &c. He gained the £500 prize for a model boiler and furnace, which, with characteristic liberality, he gave to a public institution. For an essay “On the Combustion of Coal and the Prevention of Smoke, Chemically and Practically Considered,” he received the Society of Arts £25 gold medal, presented by Prince Albert. He was an Associate of the Institute of Naval Engineers, and of the Institute of Civil Engineers, and was known as an authority in both.

By the removal to Canada of Dr. Edwards, one of the Vice-Presidents, the Society loses the active services of one of its most zealous and effective members, and will greatly miss the lucid explanations with which he was accustomed to bring before it any recent discovery in chemical science, which he rendered doubly interesting by the skilful exhibition

of accurate and beautiful experiments. It is gratifying to know that, as a Life Member, he will remain on the roll, and that his connection with the Society will not be altogether severed.

An important change in the administration of the Society's affairs has necessarily been caused by the withdrawal, in the course of last session, of Dr. Collingwood from the post of Honorary Secretary, which he had filled for nearly six years. This was occasioned by his having accepted an appointment as Scientific Naturalist to a Government expedition to the China seas—an evidence of the extent to which his ability and attainments were recognised beyond the limits of the society. It will be in the recollection of the members that the Society expressed, by formal resolution, "its sense of the very valuable services rendered by him in the onerous office of Honorary Secretary, as well as its regret at the loss sustained by his removal." The zeal which he uniformly displayed for the Society's welfare, and the untiring energy with which he conducted its business, did much to raise the Society to its present position of honour and utility.

The Treasurer's accounts, which will be laid before you this evening, show a satisfactory financial position, and that the ordinary revenue of the Society suffices for its disbursements.

The annual dinner was held at the Childwall Abbey Hotel, on Saturday, the 7th of July, and though the attendance was not numerous, those members who were present were much gratified with their day's recreation.

Several "receptions" were held during the past session, on the Mondays alternate between the meetings, at the houses of various members, and were found productive of advantage by strengthening the bond of union already subsisting between members of the society. These "receptions"

were much enjoyed, as on former occasions, by those who participated in them.

By the expiration of the term of three years for which the President serves, that office now becomes vacant, and it will therefore be necessary this evening to elect a successor to Mr. Picton, the retiring President. It will further be necessary to select some member for the office of Honorary Secretary, that post having been temporarily filled by Mr. C. J. Redish, who consented to serve, on the retirement of Dr. Collingwood, only until the annual meeting.

Your Council have now only to recommend five gentlemen for election on the new Council, in accordance with law 36, and submit the following names:—Arnold Baruchson, Rev. Enoch Mellor, M. A., Thos. J. Moore, Cor. Mem. Z. S., John Newton, M. R. C. S., and William A. Unwin.

(Signed)

J. A. PICTON, President.

J. C. REDISH, Hon. Sec.

It was moved by Mr. MARPLES, seconded by Mr. BYERLEY, and resolved, "That the Report now read be received and adopted."

The TREASURER then submitted the annual statement of accounts, duly audited by Messrs. A. J. Mott and Jas. Birchall, showing a balance in favour of the society of £250 invested in dock bonds, and £2 10s. 4d. in the Treasurer's hands; whereupon it was moved by Mr. NEWTON, seconded by Dr. NEVINS, and resolved, "That the Treasurer's accounts be passed."

The society next proceeded to ballot for a President, in place of Mr. Picton, whose term had expired, and the Rev. Christian D. Ginsburg, LL. D., was declared duly elected, and took the chair accordingly.

A ballot was then taken for five new members of Council, whereupon the following gentlemen, being those recommended by the retiring council, were duly elected :—Arnold Baruchson, Thomas J. Moore, Cor. Mem. Z. S., John Newton, M. R. C. S., William A. Unwin, and Rev. Enoch Mellor, M. A. The following gentlemen were likewise elected members of council :—Dr. Nevins, Mr. F. Archer, jun., Mr. A. Higginson, Mr. Picton, Rev. H. H. Higgins, Rev. W. Banister, Mr. Byerley, Mr. Redish, and Mr. Birchall.

Out of the Council thus elected, the following officers were chosen :—Dr. Nevins, Mr. Picton, and Rev. H. H. Higgins, Vice-Presidents ; Mr. Byerley, Treasurer ; and Mr. James Birchall, Honorary Secretary.

The Associates of the Society were re-elected, on the recommendation of the Council.

Mr. Alfred Fletcher and Mr. Thomas Dawson were balloted for, and duly elected ordinary members.

FIRST ORDINARY MEETING.

ROYAL INSTITUTION, October 15th, 1866.

The Rev. CHRISTIAN D. GINSBURG, LL. D.,
PRESIDENT, in the Chair.

This meeting was largely attended, it being known that the newly elected President would deliver his Inaugural Address on the occasion.

A communication was received from the Council, proposing that the following resolution should be entered upon the minutes, and a copy of it conveyed by the Secretary to Captain Anderson, one of the Associates of the Society :—
“That this Society offers to Captain Anderson its congratulations on the successful laying of the Atlantic Cable

of 1866; and that the Society recognises on the part of all those engaged in the whole undertaking, but especially in the recovery and completion of the cable of 1865, a degree of energy and perseverance, combined with great scientific knowledge, to which it desires to offer its expression of admiration and respect."

On the motion of Mr. T. J. Moore, seconded by Mr. Higginson, this resolution was adopted, and carried unanimously.

The following address was also ordered to be drawn up, engrossed, and presented to Dr. Edwards, (late one of the Vice-Presidents of the Society,) on the occasion of his leaving Liverpool to reside in Canada.

TO JOHN BAKER EDWARDS, PH.D., F.C.S.

Dear Sir,—On behalf of the Liverpool Literary and Philosophical Society, of which you have for so many years been an active member, and occupied the honourable position of Vice-President, we humbly wish you prosperity in your new sphere of labour. Our society will long remember your beautiful experimental illustrations, and the readiness with which you have imparted information on the most recent philosophical discoveries, and exhibited the most novel and interesting experiments which were occupying the attention of scientific men in London. But we trust that our loss will be the gain of those amongst whom you are about to dwell; and we sincerely wish you success.

CHRISTIAN D. GINSBURG, LL. D., President.

J. BIRKBECK NEVINS, M. D., Vice-President.

J. A. PICTON, F. S. A., „

HENRY H. HIGGINS, M. A., „

ISAAC BYERLEY, F. L. S. &c., Treasurer.

ALFRED HIGGINSON, M. R. C. S.

WM. BANNISTER, Ck. B. A.

THO. J. MOORE, Corr. Mem. Zool. Soc., London.

F. ARCHER, B. A.

J. C. REDISH.

ARNOLD BARUCHSON.

JOHN NEWTON, M. R. C. S.

WILLIAM A. UNWIN.

REV. ENOCH MELLOR, M. A.

JAMES BIRCHALL, Secretary.

A large number of donations was received, and thanks passed to the donors.

Mr. T. J. MOORE brought before the notice of the meeting the following recent additions to the Derby Museum :—A splendid specimen of Sea-fan Coralline, from the coast of Madeira, collected and presented by J. Yate-Johnson, Esq., Corresponding Member of the Zoological Society of London. This splendend Coralline is more than three feet in height, beautifully branched, and of a brilliant red colour. It was discovered by Mr. Johnson in 1862, the original specimen being deposited in the British Museum, and described by Dr. Gray in the *Annals of Natural History* for August in that year, under the name of *Paragorgia Johnsoni*. Mr. Johnson has for years contributed largely to the Derby Museum from the fauna of Madeira. A fine mounted skeleton of the Dolphin (*Coryphæna hippurus*), of large size, from the North Atlantic, with the skin of the fish also preserved, thus showing the relation of one to the other. This had been captured, prepared, and presented by Captain John Walker, ship *Trenton*, Associate of the Society, as also were several other marine specimens, forming a part of the third important collection received from that gentleman within the last twelve months. A very interesting series of marine specimens collected by Captain Whiteway, ship *Annie Chesshire*, Associate of the Society, including a splendid specimen of the *Spirula*, one of three taken in one haul of the net, in about lat. 19 deg. North, long. 22 deg. West. The capture of this singular little chambered shell, with its animal, is a circumstance of extremely rare occurrence ; indeed, although the shell is widely spread through the ocean, and was known and drawn by Lister in the seventeenth century, a specimen with the animal at all approaching to perfection was not obtained till 1845, when Dr. Gray described, in the *Annals of Natural History*, one

obtained on the coast of New Zealand by Mr. Percy Earl, by whom it was forwarded to the late Mr. Hugh Cuming. Singularly enough, a *Spirula* with a damaged portion of the animal had formed part of the second collection received from Captain Walker, and was taken in lat. 25 deg. 42 min. North, long. 21 deg. 38 min. West. This specimen, the first received at the Museum, and pointed out by Mr. Marrat, was also exhibited. The *Spirula* belongs to the same order of shells as the Nautilus and Argonaut, but is of small size and enveloped in the body of the animal.

The President then read his Inaugural Address.

INAUGURAL ADDRESS.

GENTLEMEN,

Both for your sake and my own, I could have wished that the custom for the newly elected President to read an Inaugural Address might sometimes be dispensed with. For the last six months I have been engaged in carrying through the press a work in an Oriental Language, which not only keeps me daily between six and seven hours writing at my desk, but absolutely requires my presence at the printing office, among the compositors, for three or four hours every day. You will, therefore, see that, with at least ten hours a day of mental labour pre-occupied, I could not well compile such an opening address as leisure might have enabled me to do, and as is becoming such an occasion. Having made this apology, which I deem due to you, I shall now proceed to read the few desultory remarks I have jotted down.

The great aim of the Literary and Philosophical Society is, or ought to be, the intellectual improvement of its members, and the benefit of the town in which we live, by the periodical communication at our sundry meetings of such literary, philosophic, and scientific intelligence, as cannot easily be obtained by every one, without great sacrifice of time and labour, and without possessing that special training, peculiar bent of mind, and those mental powers, that love, capacity, and assiduity for research, which are neither possessed nor coveted by all.

Taking for granted, from the Proceedings of past years, that the members possess the necessary qualifications for their self-imposed and highly important task, it does by no

means follow that the Society, as a matter of course, has been, or must be, successful in its aim. Success does not depend entirely upon the attainments of its members. Unless those of our fellow townsmen who, through uncontrollable circumstances, cannot join our ranks, read our Transactions, sympathise with our efforts, and aid us in our endeavours, our exertions must necessarily be crippled. There are, therefore, two essential conditions necessary to our success, and to our occupying a position among the learned Societies of England and Europe, worthy of so large, populous, and distinguished a town as Liverpool. First, learning, research, and industry on the part of the members of the Society, the results of which must be communicated at our periodical meetings, and carefully embodied in our Transactions. And, second, a sympathising community, ready to listen to our communications, and willing to aid us by the means at their disposal in promoting the extension of literature, philosophy, and science, in the town in which we live.

In glancing at these two points, and in endeavouring to show how they might be acted upon and improved, I find it necessary to discuss the second first. I shall therefore advert first to the inhabitants of our town, who ought more especially to help us, whom we ought primarily to benefit, and to whom we principally look for the recruiting of our ranks.

People, otherwise engaged than in buying and selling, in going to the counting-house and on the exchange for the sole purpose of making money, in order to obtain the comforts and luxuries which money can procure, are often doomed to hear it declared, by some of the most distinguished merchants in our town, as if it were a matter for boasting or congratulation, that Liverpool is not a scientific, literary, or philosophical place. That this is only too true, the most

enthusiastic admirer of Liverpool, of its world-wide commerce, of its charitable institutions, and of its local government, will readily admit. As long as we have no aristocracy in Liverpool, no separate class of literary and scientific men, to make men of business feel that the mere possession of a quantity of money is no passport to the higher classes of society; and as long as people find that the length of the purse is the standard of the man, that money answereth all things, and that it secures for them honourable membership of the local government, in spite of an utter want of the very rudiments of education;—all attempts to diffuse science and literature, all endeavours to swell the ranks of our members, will be and must be a most difficult task.

As some may, peradventure, think that this is an exaggerated statement, let me advert to what I myself have experienced. Once upon a time, I visited a gentleman in the neighbourhood of Liverpool, who is one of the most distinguished and scientific members of the Literary and Philosophical Society, and who, among other things, showed me a very beautiful collection of shells. No doubt his scientific classification of them, and his lucid explanation of their respective histories, produced in me an enthusiasm for these charming specimens of natural history which I had never experienced before, making me almost covet the graceful forms of these shells, and look upon their brilliant and variegated garments as coats of many colours, wherewith the benign Father of the Universe has clothed so many Josephs.

On my returning to Liverpool, I happened to meet in the railway-carriage one of our wealthy merchants, and, of course, spoke to him with enthusiasm about the shells. He first asked about the number constituting the collection, and then the probable cost of a shell. Thinking that he made these enquiries because he wanted to buy some, either for his

sons or to present to a public institution, I told him my friend had informed me that his own were not very costly, but that he had occasion to make a catalogue of another collection, in which there were some shells worth from £30 to £70 each. Whereupon this merchant exclaimed, "Excuse me, what a foolish man your friend must be to spend his money in little fish-bones, one of which costs nearly £3 a year." Yet this very gentleman gives no less than ten grand dinner parties during the season, each one of which must at least cost about £30, thus amounting to about £300, at which more costly fish-bones are consumed, and which leave no other pleasant or instructive reminiscence behind than head-aches and the drinking of soda water on the following day.

Another very wealthy merchant, asked me one day, in an exceedingly distressing tone of voice, what he must do to cure his son, who shows no disposition for business, but will stick to books, and is very anxious to go either to Oxford or Cambridge. The gentleman, who has only two sons, and is rich enough to make a dozen children independent, added, by way of explaining to me his anxiety, "You know that science and literature are a poor pay."

This estimation of scientific and literary labours by pounds, shillings, and pence,—the question put by men of business to the philosopher, the man of science or of literature, who, with an ecstasy to which buyers and sellers on 'Change, in the moments of their greatest commercial prosperity, are utter strangers, describes the new discoveries he has made in the laws of mind or matter—"How much will it bring you in a year?"—I say this attempt to measure by money's value mental victories, which disdain the spoils of filthy lucre, has had its mournful effects. The training of our young men is what is termed simply commercial, which is merely a euphemism for money-making. The youth is

sent to a public school at the age of twelve or fourteen, when, as a general rule, he neither understands the importance of, nor cares for, learning. At the age of eighteen, the very time when he may begin to appreciate the value of mental acquirements, he is taken from school, and placed in an office. Henceforth, in nine hundred and ninety-nine cases out of a thousand, scientific or literary studies are at an end. An hour a day over the newspapers, and about half-a-dozen exciting novels a year, perhaps with a weekly or two, a fortnightly, a monthly, or a quarterly,—this constitutes the whole cycle of study.

The independent tone of conversation which the young man acquires, in the office, or in the dining-rooms to which he resorts for refreshments, and the presumption that because he has been in a better public school, and, perhaps, remained in it twelve months longer than his father, he must know more than his seniors, almost preclude the possibility of his continuing to rear a scientific or literary structure upon the basis laid at school. With his hands in his pockets on the flags, he soon finds that money is the criterion by which he will be judged in a mercantile town. In a commercial crisis he delights to talk about So-and-so having been “cleaned out;” and when he hears of the death of his companion’s father, the first question he asks is, “How did the governor cut up?” Such young gentlemen, and there are plenty of them, cannot endure to become members of the Literary and Philosophical Society. They prefer to go to inferior places, where they can rule and teach, rather than to a society where they will have to submit to learn. This, to my mind, and this alone, can account for the fact that Liverpool, which, according to the Blue Book on Electoral Returns laid before Parliament last session, contains 482,409 inhabitants, a town which boasts to be the second in the empire, is not a scientific or literary place. The sympathy, therefore, which

we receive from the community at large is exceedingly little, and the number from which we wish to recruit our ranks, in order to keep up the value of our Transactions, is very limited.

With such a condition of things before us, the question naturally arises: What is the Literary and Philosophical Society to do in order to maintain its corporate existence in a vigorous and active condition? and what are the best means to be adopted to foster independent and original research in the regions of science, and to promote the extension of the boundaries of learning? This is the second point which I intend to bring before you this evening.

That our task is not altogether hopeless, the Transactions of our own Society, as well as the Proceedings of the kindred learned Societies in this town, show, beyond the shadow of a doubt. That there are among our merchants both old and young men, who possess the vigour of intellect, keenness of perception, originality of mind, and firmness of purpose, which are essential elements in exploring the still untrodden paths of knowledge, and in extending the boundaries of science, and which, if properly cultivated, would make them an ornament to any learned Society in the world, there is equally no doubt whatever. This is but perfectly natural; since many of the mental properties which are requisite for animating and working a gigantic mercantile organisation, whose head and heart are scheming and planning in one place, and whose arms embrace the whole world, are the very qualifications which preeminently fit them to be pioneers to the armies who start on scientific explorations.

Our duty as the Literary and Philosophical Society seems therefore obvious. The means to be adopted for making such brilliant and valuable qualifications subservient to the cause of science and literature appear to be within reach. Our merchants, like all true Britons, possess a noble ambition.

With a commendable sensitiveness, Englishmen do not like to be beaten by foreigners in that which intellect or money can procure, and which exalts a nation to the first position in science and literature among the nations of the earth. Now I am inclined to think that a Paper read before the Literary and Philosophical Society, pointing out the departments of learning in which Continental mercantile communities, who possess no greater intellectual powers and less material wealth, have surpassed us, the ambition of our Liverpool merchants would be touched, and they would determine not to be beaten by their inferiors.

Take, for instance, Classical Literature. I hardly need tell you that our best guides to it are either translations of, or based upon, the works of Germans. Our best Greek Lexicon, which is that by Liddell and Scott, is founded upon Passow, "without whose Lexicon, as a base to work upon," the editors themselves frankly declare in the Preface, "our own would never have been compiled." Our Latin Dictionaries, by Scott, Smith, and Andrews, are either entirely or partly reared upon Freund's gigantic Latin-German Dictionary. The best editions of our Greek and Latin classics, are those the texts of which have been most laboriously and scrupulously collated by Germans, and the notes of which are replete with the philological and antiquarian researches of these foreigners. You can hardly read a page of Smith's excellent Dictionaries of Greek and Roman Antiquities, Geography, Biography, and Mythology, without finding it abound with the labours of Continental writers.

Leave the department of profane learning, and glance at the domain of Sacred Literature. Here you would naturally think that we are monarchs of all we survey, seeing that we boast of a greater love for the Bible than any other nation, and that we send teachers to all parts of the earth, to unfold

its contents to all kindreds and nations and tongues. But what is really the case? We should in all probability still have been without a critical collation of the mere text of the Greek New Testament, but for the labours of Griesbach, Scholz, Lachmann, and Tischendorff, all of whom are Germans. The English annotations by Dr. Bloomfield, Professor Jowett, Dean Stanley, Dean Alford, and Bishop Ellicott, which accompany the Greek text of the whole, or portions, of the New Testament, embody, to a large extent, the exegetical labours of De Wette, Meyer, and a host of other German writers.

As to the Old Testament, for its exegesis and interpretation, we are dependent upon foreigners to a still greater extent. It could not be imagined by ordinary students, yet it is perfectly true, that there has not as yet been published a correct and critical edition of the simple text. Far more labour and research have been bestowed upon the revision of the texts of any of the standard Greek and Latin classics than upon the Old Testament; and the little that has been done to it has been done by foreigners. The very keys to the syntax of the language, and the meaning of the words which we use in our public schools and universities, are translations from the Germans. What student of the original can dispense with Gesenius' and Ewald's Grammars, or with Gesenius' and Fürst's Lexicons? The few critical commentaries on different portions of the Old Testament, which are really critical and exegetical, are either direct translations from the German, or abound on every page with quotations from German writers. Yet, with all the help which we have invoked from Germany, I submit, without fear of contradiction, that ninety-nine students out of a hundred are perfectly unable either to decipher or to account for the hieroglyphic glosses which are to be found in the foot-notes

of almost every page of the Bibles published by the Bible Society, which boasts that it publishes the pure Word of God, without comment or note.

The reason why I have selected classics and textual criticism to shew how much we are behind foreign nations, is because I have spent my life in these departments of literature, and can therefore speak more confidently about them.

Now, I ask, shall we, as Englishmen, with intellectual powers quite as great as those of any other people, and with a share of practical common sense larger than that of any other people, allow ourselves to be outdone by foreigners, and submit to beg, borrow, and steal from German writings? Has Liverpool, the second town in this liberal and great empire, no honour at stake in not contributing to the progress of science and literature? Will our wealthy merchants continue to tolerate the appellation given to us, that we are a nation of shop-keepers? Let us shew that we, who have outstripped the nations of the earth in the race of commerce, are now determined to be in advance of them in the pursuit of knowledge.

Like Athens, Alexandria, and Rome of old—like Venice and Florence in the middle ages,—and like London and Paris of the present day, let Liverpool show that a great commercial town can also be a great centre for art, science, and literature. It is by the position we occupy in the domain of knowledge, and not by our success in business, that future generations will remember us. When the names of many a wealthy merchant shall be forgotten, when the mansions which they have built shall crumble and be swept away, the name of Roscoe will be emblazoned indelibly upon the heart and mind of every educated Liverpoolian, and his literary productions will survive as the most abiding and beautiful monuments in our town.

Gentlemen ! fellow members of the Literary and Philosophical Society ! whatever apathy others of our own townsmen may display towards the pursuit of Knowledge, we dare not, we will not, draw back. The recent discoveries and achievements in the various departments of science call upon us more than ever to be up and doing. The successful laying of the cable across the Atlantic, which now unites the two hemispheres, and enables them instantaneously to waft to each other the tidings of victories in the regions of knowledge ; the wonders daily disclosed to us by the two magic eyes of the telescope and microscope, which like the two faces of Janus, look in opposite directions, the one bringing heaven nearer to earth, and making the firmament declare the glory of God, and the other elevating the most hidden and insignificant beings into the beautiful scale of organisation, and making the earth show His handy-work ; the portions of the globe which for centuries concealed their inhabitants and produce, but which have recently been obliged to open their gates at the bidding of the scientific explorer ; the tracing of those rivers to their natural source, which for thousands of years were sealed from mortal vision ; the marvellous development of species, now tracked by natural historians ; the remarkable affinity of languages, established by the philologist ; the immortal spirit of nationalities, which has recently subverted thrones, and united different portions of the human family, long imprisoned by petty tyrants in separate cells, into a few grand nations, who will henceforth vie with each other in the development of commerce, art, science, and literature, and who will eagerly seek to gain victories in the regions of thought ;—all demand that our united energies should be renewed, if we would not be outstripped by others in the race of intellectual progress.

Fellow members of the Literary and Philosophical Society, we who have launched our little bark upon the great ocean of

science from the inhospitable shores of commerce, to trace the thread of life which binds the whole creation together, both materially and intellectually, let us not rest upon our oars till we have made such progress as shall do honour to our successors. And even if we cannot altogether bring to the surface this living thread which mysteriously encircles the universe, let us so thoroughly sound and buoy the ocean, that in future days not the "Great Eastern," but Great Britain herself, shall find it easy to haul up the cable.

SECOND ORDINARY MEETING.

ROYAL INSTITUTION, October 29th, 1866.

THE REV. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

The Rev. H. Stowell Brown, Mr. David Bell, Mr. Hugh Shimmin, Mr. Dadabhoy Byramjee, and Mr. Adam Elliott, were balloted for, and duly elected members.

Mr. Wood introduced Mr. Pennington, who exhibited and briefly explained a new mathematical instrument for the construction of hyperbolas, or any elliptic segment.

Mr. T. J. Moore exhibited a recently acquired head and horns of a very rare stag inhabiting Pegu, Siam, and the neighbouring portion of the Malayan peninsula. It is the *Sungnai*, or *Singnai*, of Munnipur, the *Thamine*, of Burma, and the *Cervus* (*Panolia*) *Eldii*, of zoologists. It was first made known, in 1841, in the *Calcutta Journal of Natural History*. The venison is stated to be brought to the provision bazaar at Rangoon with that of other deer (*Sámur*, hog deer, and *Muntjac*). It is a highly gregarious species, resorting to openings in the forest like the Indian *Bara Singha*. The horns are remarkable for their recumbent form, and, though the most easily and most generally preserved of a hunter's spoils, are, as regards this species, exceedingly rare in collections.

Mr. Moore then announced the death of Mr. William Tyrer Gerrard, which took place in July last, from yellow fever, at Tamatave, Madagascar, in the thirty-fourth year of

his age. Mr. Gerrard was a native of Knowsley, near Liverpool, and united to very studious and reserved habits a most ardent love of nature, to indulge which he visited Australia, then proceeded to Natal, made large collections there, particularly of plants, of which he discovered very many new species and new genera. He made an expedition into the Zulu country, in which he narrowly escaped with his life. In the spring of 1865, he proceeded to Madagascar, where he collected largely with such enthusiasm that he remained during the sickly season, when other Europeans left the island, and fell a victim to his ardent zeal in the cause of science.

Before leaving Natal he had sent to the Derby Museum a fine stuffed specimen of the Aard Vark of the Dutch colonists (*Orycteropus Capensis*), which was exhibited at this meeting by Mr. Moore.

The Rev. H. H. Higgins exhibited, on behalf of Dr. Turner, a MS. on leather, which being referred to the Chairman, he described as a portion of the Book of Esther, and not more than forty or fifty years old. The Book of Esther, he remarked, was read annually at the feast of Purim, in the synagogue, but, as printed books were not allowed to be read therein, such manuscripts as the one exhibited were common among the Jews, who preferred manuscript portions of the Scriptures to printed copies for their private use. Mr. Higgins also showed some specimens of rock from South Victoria Land and some islands off Cape Horn, collected by Mr. J. D. Hooker, of H. M. S. Erebus.

The following paper was then read : -

ON NURSERY TALES, AS ILLUSTRATING AND FORMING NATIONAL CHARACTER.

BY

J. BIRKBECK NEVINS, M. D. LOND., AND V. P.

DURING a voyage which I made some years since into Hudson's Bay, I became acquainted with a chief of one of the tribes of Cree Indians, and travelled for some time in his company. He was an intelligent man; and as his tribe lived on the frontiers of Canada he had been accustomed to mix with the Canadians from childhood, and spoke English with ease and general correctness; though he evidently still thought in Indian, and translated into English, when he related the Indian nursery tales which gave origin to the present paper. They were the stories to which he had often listened with other Indian children round the wigwam fire, when he had joined in bribing some Indian granny by a piece of tobacco to tell them a story, "and now another, Granny."

These tales, possessing little of beauty and nothing of poetry, were interesting as illustrating Indian character, and in their striking want of resemblance to anything ever heard in an English nursery; and it has been an object of interest from time to time, to notice how the nursery tales of our own and of other countries are characteristic of the nation to which they belong. To illustrate this will be one object of this evening's paper. But there is another aspect in which we may look at nursery tales, and that one of very grave importance, viz., their influence in forming the character of the rising generation; for it needs no lengthened argument

to convince us of the extent to which the character of the whole life is dependent upon the lessons received in our earliest years ; of which, nursery tales form by no means the least influential part.

The tales which are most familiar in English nurseries are *Jack the Giant Killer*, *Puss in Boots*, *Cinderella*, *Tom Thumb*, *The Sleeping Beauty*, *The White Cat*, and *Jack and the Bean Stalk*. I omit those which have recently been introduced by Andersen into our nurseries, though many of them will no doubt appear as familiar to our children as the above are to us.

Of this list, it is remarkable how few are originally English ; for the most cursory examination of the story shews that *Puss in Boots* is of foreign origin ; and *Cinderella*, *The Sleeping Beauty*, and *The White Cat* also exhibit evidences of foreign extraction, to which we shall have to direct our attention presently.

If we take the most thoroughly popular and national of our English stories, viz., *Jack the Giant Killer*, and analyse it, we find it to possess the following features.—A simple farmer's son, in a remote part of the country, is a brave and hardy boy, but not remarkable for his beauty or his intellectual qualities, which are never mentioned in the story. By a very simple contrivance, which has more of hard work in it than of cunning, he gets a brutal giant into a pit, and splits his skull with the pickaxe with which he had dug the hole. The great men of the neighbourhood, *i. e.* the justices, give him a sword and belt, and dub him “Jack (his plain country name) the Giant Killer.” After this adventure he falls into the hands of the giant's brother, who is himself a giant. He throws a noose over the giant's head from a window, as he is returning to the castle, and strangles him ; and then finding some ladies in a deplorable condition, who had been taken prisoners, he releases them, gives them

the giant's castle, and sets off again on his journey. After this he kills two or three more giants, who are represented as being Welshmen and great fools, and becomes possessed of certain magical weapons—a sword of sharpness, a coat of darkness, and shoes of swiftness. He kills some more blunder-headed giants, and at length destroys an enchanted castle; and having released a duke's daughter from captivity, and gained renown which spread so far as the court of King Arthur, the king, for the first time, appears in the story. He gives Jack an estate, and persuades the duke to give him his daughter whom he had saved, and they live together in a quiet jog-trot way “in peace and happiness.”

The features in this story which illustrate its English character are very strongly marked. In the first place, the hero is a plain country youth, the son of a simple yeoman; a commencement which naturally arises from the Saxon element in our country. For amongst our Saxon ancestors it was, that the love of a freehold farm, however small, was so deeply implanted, and was considered so important, that we see its effect even to the present time, in the constitutional right to a vote for the county possessed by every freeholder of even so small an amount as forty shillings a year; a privilege which places him on an equality in a very important respect with the wealthiest landowner in the county, who possesses but his single vote, no matter what may be the extent of his domains. The love of free ownership was one of the strongest elements in the Saxon character; and Blackstone's account of the devices by which William the Conqueror and his successors tried to overpower it is full of interest. The contest continued, with varying fortunes on one side and the other, for several centuries, and was not finally terminated until some time after the accession of Charles II.

We see, therefore, that it is perfectly natural, and strictly

national, that the hero of our tale should be a simple yeoman's son, who, as such, would stand on an equal footing with the best, but would not be either very elegant or very accomplished, and whose muscularity would probably be his chief attribute. Another English nursery tale in fact draws his portrait —

“Mother Goose had a Son, a plain looking lad;
He was not very good, nor yet very bad.”

The next circumstance to be noticed is, that the giants are all either Cornish or Welsh; and they are all described as being coarse brutes and great fools. The national feud between the Saxon invader and the ancient Briton, whom he had dispossessed and driven into these remote parts of the island, is kept in memory; and the clever conqueror is the Saxon “Jack;” the stupid fool in the story is the remnant of the dispossessed and despised race of Britons.

The next national peculiarity in the story is the dignity conferred upon him by the justices. The principle of local self-government, which was so strongly developed amongst the Saxons, and which is so jealously retained in England to the present time, is here brought into play; and the justices confer upon him, *proprio motu*, and without leave or orders from a higher quarter, the dignity which is the highest he could covet, or they would think of conferring. He is girded with a champion's belt, and though still dubbed simple “Jack,” it has the honourable inscription of “Giant Killer” added.

He now proceeds on his adventures, and a new national feature is introduced into the story, for he finds some prisoners in one of the giant's castles. Now, no grand epithets are bestowed upon them: they are not princesses in disguise; they are not the most lovely and accomplished of women, such as the world rarely sees; they were simply “poor ladies” whom the Giant had imprisoned, or, according

to some versions, "hung up by the hair of their heads;" and Jack, with the simple Saxon respect for woman as woman (a national characteristic which is noted by Tacitus and other early historians), sets them at liberty, and leaves them in possession of the castle, without telling us whether they were dark or fair, plain or beautiful. It was enough that they were women to ensure Jack's loyalty and services.

At length we come to a history of enchantments which he overcame; but although something of the marvellous is almost indispensable, the magical element forms but a small portion of the story; and now the climax approaches. Jack's exploits have become known at the court of King Arthur, who appears on the scene at the end, and not until the end, of the narrative. Royalty, so far from forming an essential feature in the tale, might almost be left out without its suffering; for although King Arthur does bestow upon Jack an estate, and persuades the duke to marry his formerly captive daughter to Jack, her deliverer, he immediately disappears from the scene; and instead of the hero and his bride residing in splendour at court, we are told that they settled down in the essentially unromantic condition of "living in peace and happiness all their lives;" to be the squire and lady of the parish being the very utmost extent of their dignity.

When we analyse the other English nursery tales, *Tom Hickathrift*, *Sir Guy of Warwick*, or *Robin Hood*, we find these features belonging to them all.

In all we see the remains of the old Saxon element in the national character, amongst whom the king was but a chief, leading a number of voluntary followers, who submitted to his bidding whilst it pleased them, but whose power over them was extremely limited, and who occupied but a very insignificant place in their thoughts.

There is indeed one nursery tale in which the king is the

first person in the story; but even this illustrates in a curious manner the national feeling about royalty.—

“The king was in the counting house,
Counting out his money;
The queen was in the parlour,
Eating bread and honey.”

Now this is so far from being a burlesque, that we find illustrations of it every day, even at the present time; for although there are plenty of politicians who can throw a stone at George III., for qualities which he possessed, and others in which he was deficient, there is no English king who has occupied a higher place in the genuine affections of his people; and the principal elements of his popularity were his own affection for his nurse, his domestic qualities, his refusal to allow fine flour to be used at his own table whilst the nation was suffering from want of bread, and the simplicity of character which was indicated by his wondering question, how the apples were got into the inside of the dumplings. And when the name of our own beloved Queen is the subject of a toast, it is not the wide extent of her dominions; it is not the victories that have crowned her arms, in China, in India, or in the Crimea; it is not the character of her legislation, nor the wealth with which it has pleased Providence to bless this country under her rule, that are the subjects expatiated upon by the speaker; but it is her affection for her husband; and it is the manner in which she has brought up her family; it is her tears as a woman for the sufferings of “her poor soldiers,” and her visits of sympathy to their hospitals; these and such as these it is—womanly and domestic traits—which have given her such a place in the English heart, as the most splendid victories and the most brilliant court would be powerless to procure, if unaccompanied by those domestic and Saxon

habits, which the above homely rhymes caricature, it may be, but still not untruthfully shadow forth.

FRENCH TALES.

When we turn from our own nursery tales to those of France, we find the difference strongly marked, even from the very first words ; for whilst our own stories begin with "Once upon a time there was an honest farmer, or a poor labourer, who had a son," &c., the French stories, with few exceptions, begin with "Once upon a time there was a king," and then follows that he was so great, &c., or that he had a daughter so beautiful and so perfect, &c., that nothing in the world could be compared to her. And whilst in the English tales the royal personages might be entirely removed from the story, and their absence would scarcely be noticed, in the French the whole plot and interest turn upon their fortunes ; and every thing else is unimportant except in its relation to the royal hero or heroine. The stories which are most essentially French in their origin and character, and are still published for the benefit of French nurseries, are the *Contes des Fées* of Perrault, Madame D'Aulnoy, and Madame Beaumont ; and we will now analyse one of them, as we did in the case of *Jack the Giant Killer*. If we take the story of *Gracieuse and Percinet*, we learn that once upon a time there was a King and Queen, who had a daughter who was so incomparable for her beauty, and her *esprit*, and her sweetness, that she was called Gracieuse. There was never a morning that she had not a beautiful dress of brocaded gold, or of velvet, or of satin, and she spent all her mornings with learned persons, who taught her all sorts of sciences until it was time to lunch, when they gave her basins full of sugar plums, and more than twenty different kinds of jam ; so that every body said she was the happiest princess in the world.

At length the Queen, her mother, died ; and to dissipate the King's grief, he was ordered by his physicians to hunt and amuse himself ; and one day, being very hot, he saw a grand castle, to which he repaired to rest himself. This castle belonged to Grognon, a frightfully envious and ugly old Duchess, who invited him to go into the coolest part of it, which was a cellar, containing two hundred tuns of all sorts of wines ; and she asked him which he liked best. The King replied, Champagne ; so she tapped a cask, when out ran a bushel of louis d'ors, and she tapped another, when so many pearls and diamonds ran out that the floor was covered. So then she told the King that all the two hundred tuns were filled with gold and precious stones, and he should have them all if he would marry her and leave his daughter entirely in her power ; and as the King loved money above all things, he agreed to do so, and married her. Then follows a long account of how the bride got herself up with a false eye, and a high heel, &c., and her toilet is described with the greatest minuteness.

Meantime the Princess had retired into the garden to lament her fate, when a page approached her and told her that he was a Prince in disguise, and had come as a page to gain her love, by the services he could perform, now that the King was going to marry her enemy ; for a gift from a fairy at the time of his birth would enable him to be of great use to her. The Queen, being now married, commenced her persecution of poor Gracieuse, by inflicting upon her the most degrading personal chastisements, even to floggings, of which the King took no notice, leaving the fate of his daughter entirely in her hands, and merely replying, when told that she was in danger of death from her fury, "I have given her up to her new mother, and she must bear whatever she pleases."

The Princess, soon after this, is sent by the tyrant into a

great and impassable forest, where wolves are specially mentioned as abounding. In this dreary region her faithful prince, Percinet, finds her, and takes her in safety to the fairy palace inhabited by his mother and sisters, the walls of which were of crystal, and where everything was of the most splendid description. Here she remains for a time; but at length she returns to the city, led there by affection for her father, who had been told she was dead, and lamented her bitterly. He soon, however, gives her up again to the power of the Queen, who inflicts upon her new evils, and subjects her to gross indignities, by clothing her in humble garments, &c., the particulars of which are given with almost as much minuteness as those of the splendid clothes described at first; the mean apparel being apparently thought as great an element in the adversity, as the gay clothes had been in the prosperity, of the Princess. From all this misery her devoted lover, Percinet, releases her by fairy aid; and their marriage is celebrated with the greatest magnificence. All the fairies, for a thousand miles round, came in the most sumptuous chariots: some drawn by swans and some by dragons, some on clouds and some in globes of fire. At the same time, the fairy who had assisted the Queen in all her iniquities came also, not knowing what it was all about; and having obtained pardon for herself, she flew off to punish her accomplice, and compounded for her own sins by twisting the Queen's neck, before her guards could interfere to prevent it.

Such is the frame-work upon which nearly all the stories that are genuinely French appear to be constructed; and it is curiously illustrative of French history and habits of thought. The king is the centre of the story, the source of all its action, and the person whose will is undisputed law. *L' état c'est moi*, is stamped upon the face of every one of them. And when we take them up, one after another, we

scarcely wonder at Louis the Fourteenth's estimate of kingly power ; and are reminded continually of an anecdote told of his minister, the Count de Guiche. "On one occasion, the king was speaking about the extent of royal authority, when the minister ventured to suggest that there might be circumstances that might limit its extent, which the king utterly denied. 'If,' said he, 'for example, I should desire you to throw yourself head foremost into the sea, it would be your duty to do so instantly.' The minister at once began to leave the royal presence ; and when the king enquired where he was going : 'To learn to swim, sire,' was the reply."

Now this is scarcely a caricature upon the tenor of some of these stories ; but there is none that illustrates the theory so well as *The Fair One with the Golden Locks*. Like all other Princesses she was the most beautiful, and so forth, that the world had ever seen ; and when royal suitor after suitor had been sent away in despair, a youthful ambassador named Avenant is sent by his King to see if he can overcome the reluctance of the fair one. She is enamoured of the ambassador, and lends a more favourable ear than usual to his suit for his royal master ; but, notwithstanding this, she imposes upon him, apparently in very fickleness and wanton heartlessness, tasks which had over and over again proved fatal to the suitors ; and when his reply was, "Madame, I am very desirous of obeying you," and he set off on one of his perilous expeditions, she was then astonished, and said a thousand things to hinder him from going. He returned, however, in safety, and successful. Then again she sent him on a still more dangerous errand, and one which was now without excuse, except that of vanity. He was to fetch her some of the water from an enchanted well, which should preserve her beauty from fading. "Madame," said he, "I go to seek for what you desire, but with the certainty that I shall not be able to return ;" but the Princess would not

relinquish her design. Every one who saw him set off, said : “What a pity ! to see such an amiable youth go to certain destruction. Why will the Princess demand impossible things ?” But he set off without saying a word, though he was very sad.

Another characteristic feature in these stories, is the important part which the queens play in them — and generally for evil. And this also has an historical interest ; for it is familiar to readers of history, that, whilst the Salic law prevented a woman from occupying the throne of France, there are few, perhaps no, European kingdoms in which the influence of women about the sovereign has been so potent as in that country ; and we shall not find that the tale has departed from the reality, in assigning some unkingly reason as the cause for this influence, and in portraying it as generally bad.

A striking characteristic of the French tales is the contrast so often drawn between the Beauty in the story, who has no brains, and the Fright, who is so clever as to be the favourite of every one. One, viz., *Riquet with the Top-Knot*, turns entirely upon this point. — Once upon a time there was a Queen, who had a son so ugly and so ill made that it was very doubtful whether he possessed a human form ; but a friendly fairy consoled his mother by saying that he could not fail to be loved, he should have so much intelligence and wit. As a consequence of this promise, he could scarcely talk before he said a thousand things in the pleasantest manner possible, and he shewed so much of *spirituel* in all his actions, that every one was charmed in spite of his frightful appearance.

Soon after this, the Queen of a neighbouring kingdom had two little daughters, one of whom was fairer than the day ; whilst, to moderate her mother’s pride, our old friend, the fairy, said she should have no wit, and should be as

stupid as she was beautiful. The second daughter was extremely ugly and coarse-looking, but the fairy promised her so much intelligence that scarcely any one should notice that she wanted beauty.

And so it came to pass. For as they grew up, the younger always possessed the advantage over the elder; for, though every one at first drew towards the eldest, to gaze upon and admire her beauty, they found her so stupid, that they quickly left her to listen to the thousand agreeable things said by the younger: so that in less than a quarter of an hour the eldest was deserted and the youngest had a crowd of admirers.

The story then goes on to narrate the varying fortunes of the different characters, and brings the spiritual ones at last to gain beauty by the force of the love which their good qualities inspired.

The elegance of taste, so proverbial amongst the French, is another national feature, evidenced by the prominence given to descriptions of the splendour of the palaces, the richness and variety of the dresses, the magnificence and detailed mention of the jewellery, and, what is not undeserving of notice, the variety and excellence of the cooking. Whilst hasty-pudding is the breakfast in *Jack the Giant Killer*, and the "lumps of suet, as big as my two thumbs," are immortalised in the description of King Arthur's pudding, the amount of the sugar plums, and the twenty different sorts of jams, supplied for the Princess Gracieuse' lunch, may well make the infantine mouth water; and the omelette prepared by another princess, in the *Peau d' Ane*, is one that might excite the desire of an older hearer or reader.

Another feature in these stories deserving of note, is the frequent introduction of great forests, and the constant mention of wolves as a matter of course, which would be entirely misplaced in any English story of a later date than

that of the early Plantagenets. It is, however, a perfectly natural feature in a French story; and when we have noticed its constant occurrence in these tales, we find, without surprise, that *Little Red Riding Hood* is a natural French tale, and is only adopted into this country; and we see that the wolf's presence would not appear to her such a strange thing as it would to an English child.

Having these characteristics in our mind, we shall readily see that *Puss in Boots* is not an English story; for, in the first place, the title "Marquis," which the cat gives to his master, is essentially un-English in a story; and the youth's origin as a miller's son is carefully concealed by his faithful servant, who from the very first, presents "My Lord Marquis of Carrabas' compliments to the King;" the king and the nobleman being the proper people to be in a story—not an humble hero like a miller's son.

Again, the *White Cat* betrays its French origin in every part of the story. The old King is afraid of his sons wishing to supersede him—which reminds one of Kean's inimitable rendering of Louis XI.'s rejoinder, "I know what a Dauphin can do. I was a Dauphin once,"—so he promises to give his kingdom, not to the most worthy, but to the one who can best fulfil some flimsy wish he had formed. And when at last the cat resumes her proper form, she informs the old monarch, in the most elegant manner, that she will not take his kingdom in marrying his son; but as she has six kingdoms of her own she will give him one of them, and give one to each of his sons, and keep the remaining three herself; the nations and people to be transferred being the last thing to be thought of or consulted in the transaction.

ICELANDIC TALES.

We will now leave the fanciful and brilliant stories of sunny France, and turn to those of the gloomiest and most frightful of the inhabited parts of the earth—Iceland; and in them we meet almost universally with an element, which is, we may say, entirely absent from the nursery tales of France and our own country. There are very few Icelandic tales in which religious services do not form as natural and essential a feature, as the brilliant palace and the accomplished princess of French tales, or the rough strength and the faithful though it may be unpolished respect for women, of the English stories. In reading the tales of that island, where cold and desolation appear to have taken up their natural abode, we feel that they express its sense of the necessity for constant dependence upon a supreme protection, which in our own more favoured land is too apt to be forgotten.

The same feeling is indicated in the periodic cry of the Norwegian watchman, as he makes his nightly rounds among the houses, which, being built chiefly of timber, are peculiarly liable to fire, the danger from which is nightly indicated in the words, “Except the Lord keep the city, the watchman waketh but in vain”—words that would sound strange in the mouth of an English night policeman.

We will now take an Icelandic tale, and analyse it in a similar manner with those already passed in review; and the story of *Hildur, the Fairy Queen*, is one of the most characteristic for our purpose.

HILDUR, THE FAIRY QUEEN.

A Bachelor once had a Housekeeper, named Hildur, who was unknown to everybody, but was an excellent manager, and kind and obliging to all.

Everything throve with the farmer, except that he could not get a shepherd; for the shepherds had been found dead in bed on Christmas morning so repeatedly, that at length the farmer would not ask any one, nor would any man offer, to be his shepherd in future. One day, however, a likely looking man did offer his services, and continued his offer, notwithstanding the farmer's objection on the score of the risk he ran.

It had been noticed with surprise by everybody that Hildur never went to church on Christmas Eve, a time when every one in Iceland makes a point of going, even though the church should be many hours' journey from their place of residence. She always assigned as a reason that she must stay at home to prepare the Christmas feast.

On the first Christmas Eve after the shepherd had thus engaged himself, he returned home from his work too late to accompany the others to church, so he went to bed and pretended to go to sleep. In the night he felt Hildur approach him quietly, and try to put a bit between his teeth, which he allowed her to do, still pretending to be asleep, though he felt sure it was a magic bridle.

Hildur then led him out, mounted his back, and rode off at a quick pace to a great chasm in the mountains, where she dismounted, and left him, descending herself into the chasm. As soon as he was able, he descended also, and followed her unseen, by the aid of a stone of darkness which he took from his pocket. He followed her to a splendid palace, where she was met by a man dressed in purple and gold, who called her wife, and brought two children with him. She was then clothed also in royal robes, and received the greatest attention, which, however, did not appear to lessen the melancholy that her manner exhibited.

After a time she dropped a ring whilst caressing the children, and the shepherd quickly picked it up unperceived.

It was soon missed and sought for, but could not be found ; and as morning approached, Hildur took a sorrowful leave of her husband and children, and left the place. The shepherd hastened before her to the chasm in the rock, replaced the bridle in his mouth, and carried her back to the farm, still under the appearance of being asleep. On his return she laid the shepherd quietly in bed, unbridled him, and returned to her own room.

On Christmas day the household were all anxiety to know whether this shepherd also was dead ; but to their delight he met them as usual, and when asked if anything had happened, said " Oh no ! he had only had a wonderful dream," and he told the adventures of the night as if it had been a dream. " If you tell the truth," said Hildur, " shew us some token to prove it," upon which he took out the ring, and held it up before her. She then invoked blessings upon him, for having broken the charm by which her cruel fairy mother-in-law had bound her, for marrying the fairy king, who was much her superior in rank, as she was only a pretty fairy maid of low degree. The fairy had condemned her in revenge to pass all the year upon earth, except one day, and to kill some man every Christmas night, until she should be found out and executed for it ; unless she could meet with some one courageous enough to follow her into fairyland, and shew some proof of having done so. This brave man had broken the charm, and released her from the power of her mother-in-law ; and as she had been unable to help killing the shepherds, she hoped it would be forgiven. She then disappeared, and has never since been heard of.

The shepherd soon after married, and was universally prosperous, which he always attributed to the good offices of the Fairy Queen, Hildur.

In examining the special features of this story, we notice how completely it is assumed as a matter of course that

every body goes to church on Christmas Eve ; for it was the fairy's absence which excited so much suspicion respecting her. And another feature in the story contrasts curiously with some of the French tales, as told in the original form. The hero of the tale is a Bachelor, and his Housekeeper lives in his house for an indefinite period without the story giving a hint that evil was thought of in consequence. This is a common feature in these tales, and indicates a moral tone of a high character, when such a circumstance is not apparently thought of as an occasion for scandal. Now, in some of the French tales, the distressed heroine knows that if the hero could but be present, he could release her from her difficulties ; but the conflict in her own mind is described in touching terms, before she can resolve to invoke his presence, or almost to wish for it, lest evil should be said or thought. The simplicity of the Icelandic narrative is not the least pleasing feature that it presents.

It is curious to notice how many of these tales dwell upon the wide-spread glorious green plain or valley, upon which the wanderer or the enchanted person comes unexpectedly, after making his way through difficult and frightful chasms in rocks, and such obstacles as beset the Icelandic traveller. And we trace this portion of these stories to the belief of every Icelander, that the Thing Valla is the most lovely and verdant plain in the whole world ; and the desire which is said to possess them all to see this beautiful spot at least once in their lives. The absence of natural beauty from their daily life seems, therefore, to be compensated in the world of fancy, by the lovely green, and the delicious plain which opens upon the traveller's eyes in the regions of fairy life.

Very few of the Icelandic fairies appear to be malicious, and most of them are represented, like the one in our story, as hard-working and kind-hearted. Sometimes, indeed, they are wicked enough ; but when this is the case, a parson, or

the intended victim, is generally made to outwit them, as in the following story:—An old hag carried off a boy on *Sunday*, and told her daughter to boil him into soup, whilst *she went to church* to invite the guests. The girl was stupid, and the boy said he would show her how to kill him, if she would lay her head on the block; on which he cut it off, and put her into the pot instead of himself.

The religious aspect of this story is curious. The hag goes to church to invite her guests to a dinner of boy-soup. In many of the Icelandic tales a fairy man marries a natural woman, and they go to church regularly, and as much as a matter of course as any one else; and the fairies themselves often have clergymen and services amongst them.

GREEK, ROMAN, AND HEBREW STORIES.

The nations whose nursery literature we have just examined are still in the full tide of life and activity; but those to which we shall now turn our attention have, as nations, departed from the active scenes of life, though their influence is still felt, and will continue to be felt, while the human race remains upon the earth.

But here it may be necessary to anticipate an objection which will not be unnatural.—“Is it not occupying new ground, to speak of the literature of such nations as the Hebrew, the Greek, and the Roman, when the subject announced for consideration is ‘NURSERY TALES’? Are we justified in degrading the truths of the one and the myths of the other nations to the level of mere nursery tales, which appears to be done in speaking of them at the same time, as if they were classed together?” The reply to this objection is, that it is not new ground; and that from the point of view in which we regard nursery tales, it is no degradation to consider the most dignified and exalted narratives as of this character, if we look upon them as the

mental and moral food for the period of childhood; and consider how much the strength and well-being of the future man depend on the nutrition supplied to him during the earliest portion of his life.

The difficulty of this part of our subject is much increased by the feeling of responsibility assumed, in passing judgment upon a mythology such as that which we have now to consider, so briefly, as to bring it within the limits of a paper like the present—a subject also which has occupied the thoughts and exercised the talents of learned and distinguished scholars; but it is a difficulty that cannot be evaded, and must be met as best it may.

Whenever a nation has a belief in superior beings,—whether they be superior in power and holiness, or merely greater in power and wickedness; whether they be angels or demons, gods or devils, heroes or types of degradation,—the children in that nation will hear of them from their earliest years; for they will see and hear of the hopes or the fears, the worship or the deprecation, associated with these powerful beings; and according as the child is accustomed to think of them as belonging to one class or the other, so will his character become insensibly moulded, and the man will but exhibit generally the teaching of the child.

When we look to the Greek mythology in this way, its high intellectual power and sensuous beauty on the one hand, and its deep moral degradation on the other, are the two great characteristics by which it is stamped; and the latter appears to have been that which gradually overgrew and almost extinguished the former, at any rate in its later stage; until, in reading the fables in the *Metamorphoses of Ovid*, the physical beauty is almost the only remaining feature to be praised. The dignity and intellect of the Gods have vanished from the stories, whilst their sensual vices, ignoble passions, and petty wickedness are what remain as

the chief features in the fable. There are, indeed, stories, like those of *Biblis* and *Myrrha*, that record the horror with which certain unnatural and almost incredible crimes were thought of by those who were the victims of them, and the vengeance which followed their commission; but the crimes were committed notwithstanding; or, if they were avoided, it was only by the suffering and death of the victim, whilst the perpetrators of them generally escaped unpunished. We are told, indeed, of the awful majesty and the invincible power of Jupiter, as if it was the proper thing to make mention of them; but the stories prominently develop only the ignoble disguise, the base fear of being found out, and the low, degraded motive which ended in the successful commission of crimes on his part; with the boastful triumph in some cases, and the undeserved suffering of the victim in others, as the termination of the fables.

In these tales, we see Juno, as the jealous and vindictive wife, revenging herself upon the unhappy victim of her husband's unfaithfulness to herself; querulous and undignified in her reproaches of him who had strength, but bitter and unsparing in her persecution of the weaker partner in the sin; feared sometimes before detection, but not unfrequently snubbed and insulted by Jove, in return for her reproaches after he had been detected. The picture presented to us of the highest female Divinity is that of a jealous and deceived wife, and an undignified and vindictive woman. The Greek youth would learn from these nursery tales to think that it was a fine thing and a good joke to deceive hereafter, when grown to manhood; and that a contemptuous rejoinder, rather than amendment, was the proper mode of replying to the reproaches which his conduct justly deserved.

Mercury, the messenger of the Gods, is presented to us as the cunning cattle lifter, the corrupter and afterwards the betrayer of his associates, and the partner for reward

almost indifferently in the crimes of Jupiter and the revenge of Juno; and the description of other deities might be continued in similar language, though, in some cases, it would be in even darker hues.

Amongst these tales of vice and profligacy, weakness and malice, appear others, it is true, of singular beauty. Ceres is represented almost unstained; and Proserpine brings before us a fair picture of unsuspecting childish innocence: and there are a few stories which can be read with unalloyed pleasure, inculcating chiefly the virtue of hospitality, and the punishment of inhospitable behaviour to strangers.

It would, however, be a great injustice to include, in the judgment given above, the tales told, no doubt, to many a group of eager listening boys, of Jason and the Golden Fleece; of Hercules and his labours; of Perseus and his noble deeds; and the patience, self-denial, and endurance by which many of the heroes performed deeds that were thought to entitle them to a place in the heavens. The fault in these tales is not that they make their heroes more, but that they depict their Gods as less, than men, through their ignoble vices and their crimes, which it were a shame to dwell upon.

ROMAN STORIES.

The Roman stories are far less numerous than those of Greece, and the opinion has been expressed that their ancient legends have been lost, which is the reason why we have so few of their nursery tales. Without venturing a confident assertion on the subject, my impression is very strong that few nations which retain a national life do lose their early legends. If they are dying out, their ballad literature and their legendary lore may be lost or forgotten; but whilst they retain their nationality, the worthy deeds of old times will still be verbally related to young and wondering hearers, some of whom will prove to be poets or historians, and will

bestow upon them a still more enduring form. The Romans were essentially unimaginative, and their legends and tales are comparatively few.

In them we meet with the old names to a great extent, but with this difference, that the scene of a story which is disgraceful to the character of a God will almost invariably be found to be laid in Greece proper, or in the region of a Greek colony; whilst those stories which attribute high moral characteristics to the Divinity have their scenery laid in Roman territory. And even when, as sometimes, though rarely, happens, the conduct of the Roman God would not bear commendation, the judgment tacitly passed upon it differs from that of the Greek. In two well known stories, one Greek and the other Latin, Mars is represented as a principal actor, and in both cases to his dishonour; but in the Greek story his conduct merely supplies a theme for laughter to the Gods, which was not soon forgotten; whilst in the Roman tale the element of ridicule or absurdity is absent. He is the great warlike progenitor of a great and warlike people; but he became so by conduct which occasioned the death, by grave sentence of law, of the victim of his crime; and approbation or a smile would never be excited in the Roman youth, who listened to the story of what gave birth to the great founder of his city, but caused, at the same time, the death of the Vestal Virgin who had been his mother. The Roman attributes of their Gods are grave and dignified, and the nursery tales of the Horatii and of Lucretia,—of the expulsion of the Tarquins, and of the judgment of Brutus,—of the bravery of Manlius and of Clœlia,—of the sacrifice of Virginia, and the victory over Coriolanus gained by his mother, to the saving of Rome,—these, and such as these, were the tales which interested and educated the children of Rome, who in time became its warriors and defenders; and it was when the Roman idea of his Gods began to be sup-

planted by the introduction of the Greek fables, that the Vestal Virgin merged into the Greek Nymph, the Roman Mars began to fight by deputy, and the Roman Matron became what she is described in the pages of Juvenal, and of satirists even before his time.

HEBREW STORIES.

If exception should be taken to the fables just reviewed, that they are not strictly nursery tales, the same objection cannot be made against the Hebrew stories now to be examined; for they were expressly commanded to be told to children, and to be narrated, not once, nor twice, but continually, in all the varied aspects of social intercourse—in the family, at home in the house, and when walking in the way, in the morning at uprising, and in the evening before lying down—Deut. vi. 20, xi. 19; Ex. xii. 26; Josh. iv. 6.

What then was the character of these stories for the Hebrew children, and what was the effect produced on the nation thereby? They were to the effect that their great ancestor was chosen above all the men in the world to be the favourite, and to be specially called the “friend of God.” They were stories of the marvellous protection which was supernaturally extended over them—stories of intense patriotism, and uncalculating self devotion for the good of the people, in the actions of Ehud, of Jephtha, and of Gideon—stories which showed that with few or with many, with a Joshua and his hosts, or a Sampson alone, it was a matter of indifference as regarded the victory; and stories which told of the wonderful feats performed by women as well as by men, by Deborah and by Jael, even more than by Barak and his host. And again stories of continence in men, and of female faithfulness and married love, as in Joseph and in Ruth; of filial obedience and submission, in Isaac; and of hospitality to strangers, and of parental forbearance,

in Abraham's reception of the three strangers, and in his delicate and generous treatment of his nephew Lot.

And although stories of crime and wickedness are interspersed, as will be the case in all true narratives, they were never related so as to provoke a smile, or to invite the hearers to imitation; for the story of the sin of Sodom is accompanied by an everlasting memorial of its punishment; and other stories of sin long gave occasion for bitter remembrance to the Hebrew race, in the conflicts and the fearful scenes which ensued at a later period of their history.

In these Hebrew stories, however, as in those of Greece, the Deity occupies a position always prominent, and sometimes pre-eminent. We have seen the impression which the Greek stories must have produced upon the mind which heard them from early years. What then is the representation of the Deity in these Hebrew stories, which were to be told unceasingly to the children? Awful and invincible majesty and power surround Him, but no form or similitude is ever described, which could give a pretext for a figure or an image to draw them off from the unseen reality to that which, being seen, was less than the meanest of its makers; and whilst impurity and deceit are stamped upon the Greek divinities in characters that cannot be erased, *Holiness* is the symbol which appears in every page of the Hebrew description of their Lord. And, animated by these stories, a nation lived, whose deeds of bravery and of daring were the wonder of the ancient world, the great monarchs of which tried in vain to subdue them, whilst they remained faithful to their teaching. And even when they had much forgotten the lessons these stories were intended to convey, there were still such women as the mother in the *Maccabees*, who could stand by and encourage her seven sons to endure torture to the death, rather than violate the law; and who could also herself at last joyfully submit to the same fate, in full confidence of the

glory to be revealed hereafter. And not only have Hebrew men and Hebrew mothers been solaced and sustained in bitter trial by these wonderful stories, but throughout the world their influence is still felt, and will still support in their hour of need, all who like the Hebrews have had the privilege of hearing them as nursery tales.

NORTH AMERICAN INDIAN TALES.

We have now examined the nursery tales of three nations in full life and vigour, and of three others which have ceased to be nations; and the conclusion of our inquiry shall be devoted to those of a nation now disappearing from the earth, whose stories, as already mentioned, first suggested the idea of this paper; I mean the tales told round the wigwam fires of the North American Cree Indians; and of these we will select one which seems to convey most fully the characteristics of their stories generally.

Once upon a time an Indian and his wife died, leaving two children, a girl and a little boy. The girl was old enough to snare rabbits and small game, and supported them until the boy had grown up to a good size: and one day he saw a great white bear in the woods; so he began to recall his dreams, and call upon his gods, who had promised in his dreams to help him; and then, just as the bear was about to seize him, he shot an arrow at it and killed it; and then thought himself a very great hunter. Sometime after this he set off and came at night to a large plain, which ended in a deep hollow; so he stopped and said to himself, "I never dreamt in my fasting days of going down into a hole and coming up again, so I'll just set a snare and see what I can catch;" which he did, and went to sleep. And in the morning he found something very round and shining in it, and on examining it he saw that he had caught the Sun by the neck, as it came up in the morning. He said

"Oh! I have done very wrong to catch the Sun, for the Indians in the West will want him during the day, I must let him loose." So he called various animals and sent them to break the snare, but they were all burnt up, until he sent a mammoth, which succeeded in setting the Sun free, but was also burnt up, except a little bit as big as the end of your finger, which was made into the little black mouse, that is still found in Canada.

Another time he reached the wigwam of an Indian one night, when a giant, called Windego, who was a man-eater, and had nearly depopulated the place, demanded him; the Indian begged that he would not insist upon having him, as he was a stranger, and must be treated hospitably; but he persisted in his demand, so the youth called upon his gods, and shot him, and cut off his head.

When he went away, he was told that he would come to three lodges, a day's journey each apart, and that he would be hospitably welcomed, but he would be killed during his sleep, so he must on no account go to sleep, however weary he might be: and it was only by keeping awake that he saw the danger and escaped each time. After this he met an old man, who told him that at the next lodge he would find ten young women, who would try and persuade him to stay with them; but he must push past the first nine, but he might stay with the last. And he did so with great difficulty; and on enquiring from the last what it meant, she said he was very fortunate to have passed them, for most travellers were so tired they stayed with the first that asked them, and the nine sisters were all married, and the husbands came and killed them. Then he went on his way, but could scarcely distinguish his path. Many strangers had come thus far, and the path was easy to find; but here they had all been killed; so that he found his way with difficulty to another lodge, where was an old woman and her daughter,

the latter of whom he married, and they lived happily together.

The metamorphosis of plants and animals, and the Indian notions of the world and the heavens, as illustrated in this story, form a frequent feature in these tales; and though some of them possess considerable beauty, like the Song of Hiawatha, describing the origin of the Indian corn, there is in general little more poetry about the narratives than in the one just related. But the features deserving of comment in this story, and in others resembling it, are the habitual references to his dreams in times of difficulty, and the self-denial and virtuous continence which the story implies. This latter is a well marked feature in the North American Indian character, and unfaithfulness in married life is very rare; when it does occur, it is generally revenged by the death of the guilty parties, as shewn in the following story, which also illustrates some other features in the Indian character not unworthy of note.

Once upon a time—for thus an Indian story, like our own, always begins—a young Indian chose a pretty wife in opposition to the advice of his mother, who told him he ought to look out for one who could dress the skins he took in hunting, and cook well, rather than for a pretty one. After a time he discovered that she was unfaithful, and he killed both her and her lover; and then knowing that her brother would try to kill him, he left the place, and told his two little boys that they must run away in a different direction, and if they heard their mother's head, which he had cut off, calling to them, they must not look back or pay any attention to it. All turned out as he expected, and after many difficulties the boys reached a river, across which they were carried by a crane, just as the head rolled itself to the bank. The crane took it also up, and promised to carry it over after them; but dropped it purposely in the middle of

the river, when it was changed into a sturgeon—and many Indians will not eat this fish on account of this tradition. Here the boys grew up in the woods until they were men, when one day, a bad old medicine man found them, and offering to take one of them in his canoe to collect gulls' eggs, left him on an island from which he could not escape. But he had dreamt in his fasting days that the gulls would save him, so they carried him safely off the island; and the old man pretended that it was an accident, and that he was very sorry. So the young man only replied, "Oh! no matter, no matter;" for an Indian does not profess to be offended unless he has an opportunity of avenging himself, and intends to do so.

Another time the old man proposed to go hunting the moose deer in winter; and during the night intended to burn the young man's shoes and stockings when he was asleep, which would oblige him to go home with naked feet in the snow, which would freeze them and cause his death; but the young man anticipated the intention, and by a stratagem caused the old man to throw his own shoes into the fire instead. But instead of leaving him to his deserved fate, he made a sleigh of deer skins and dragged him safely home.

From the novels we sometimes read about Indian life and manners, we are apt to think that forgiveness of injuries is not inculcated upon them as an Indian virtue; but the above, and others of a similar nature, tell a different tale, and the following, from real life, is an illustration to this effect.

An old Indian was one of a party that had become drunk; and whilst they were asleep, one of the Indians, who owed a grudge to another, cut off his nose, and escaped. The injured man, still half drunk, supposed it was his nearest neighbour who had done it, and cut off the old man's nose who happened to be lying asleep next to him. When the matter came to be discussed, as soon as they were awake and

sober, the old man said, "Well, it did not matter. He was an old man, and it was a mistake;" and he took no steps to revenge himself. When the circumstance was narrated to me, he was not praised for his generosity; but no disparaging reflections were made, as if he was a coward for not revenging himself.

The general tenor of these stories gives a favourable idea of the morals of the Indians. Stealing from one another seldom forms part of the stories; married truth, and affection amongst the members of families, is a decided feature; revenge for petty injuries is not breathed in the tales; and even grave injuries are constantly passed by without leaving any apparent memory of their occurrence. They leave the impression of a simple race of people, with few active vices, of great patience and endurance, and possessing qualities of generosity and truthfulness of by no means a low order. But as we have seen how the Gods appear in the Greek tales, and how the Deity is represented in the Hebrew stories, let us now see in what aspect the Divinities of these Indians come before us in their stories; and here we find a picture which accounts for much of the present and the past of these people. The following tale is a fair representation of them all:—

Once upon a time Aninna Boojòo, their great God, was out hunting, when he saw many red lions basking in the sun, and a great white lion in the midst of the herd. He had never seen a white lion before; so he was very desirous of obtaining its skin to make a tobacco pouch. Now, an Indian, in general, is satisfied with a musk rat's skin for a pouch, but Aninna Boojòo was so proud that nothing would satisfy him but the hide of this white lion. He contrived to shoot it, but did not kill it, and the red lions carried it off into the wood, to his great mortification. At length he met an old medicine woman, who told him she was spreading

a snare to catch Aninna Boojòo, because he had shot their chief, the white lion, and she was going to cure the lion by certain songs and herbs. So he learnt the songs from her, and where the wounded lion was, and then cut off her head and skinned her; and getting inside her skin, he feigned her voice and deceived the lions, until he could get near enough to kill the white one, which he immediately skinned, and then made his escape. The lions had power to cause the water of a surrounding lake to rise until the world was drowned, and Aninna Boojòo himself was nearly drowned also. At length the water ceased to rise, and he then called to him various animals, and told them to dive and bring up some earth, that he might make a new world. They did so; but one after another was dead before they could find any earth. At length, the musk rat rose to the surface apparently dead also; but by breathing on it he restored it, and then found a little bit of mud sticking to one of its claws. This he rolled in his hand, breathing upon it continually, upon which it grew larger and larger, until at length it would bear the little musk rat, and afterwards larger animals still; and at last it became a new world. (One of the Islands in Lake Superior is thought by the Indians to be the beginning of this new world.)

He once caught a very fine porcupine, and having dressed and cooked it, sat down to eat it. It happened that the wind made two trees rub against each other, so as to produce a creaking noise. Now an Indian's stomach will generally digest anything, but Aninna Boojòo was so proud that day that he had a very delicate stomach, and could not eat if there was any noise. So he climbed up the trees to separate them, but just then they caught one of his arms between them and held him fast; and some Chippewa Indians looked up from the bush and saw him, and said, "Oh! Aninna Boojòo is fast, we'll go and steal his porcupine." So they

took it and ate it, and he could not come down until the wind changed, when the trees separated and set him at liberty.

With one story more, we will conclude our Indian mythology. Aninna Boojòo once came to a place where there was an immense number of birds, luns, geese, ducks, and plovers, and he thought he would catch some. So he told them he would play the drum for them if they would shut their eyes and dance round his fire, and make as much noise as they could. So they danced round, and whenever a fine bird came past him, he caught it and screwed off its neck, and set it down again. At length an old lune opened his eyes and gave the alarm, when they all flew away. He was very angry, and cried out, "Oh! you rascally lune, why did you open your eyes?" and as he had no arrows at hand, he threw his drumstick at the lune, and struck him upon the back just above the tail, which made him come almost to the ground, and fly a good way before he could rise again. (In this bird there is a black spot in the feathers at this situation, and it always makes a long horizontal flight before it can rise in the air; both which peculiarities are thus accounted for.)

Aninna Boojòo then dug a deep trench under the fire, and put the birds in with nothing but their feet sticking out, and covered them over with the hot sand to cook, and went to sleep, having first desired his toes to keep watch, and awake him if the Indians came. They soon awoke him, but as he could not see the Indians, who were too quick for him, he merely threatened his toes if they awoke him again unnecessarily. The Indians now came and stole all his birds, and escaped; and when he awoke, and found the loss, he was very angry with his toes, and said, "I'll punish you for this! Why did you not awake me?" So he held them in the fire until they were burnt; and as he walked through the woods,

some of the blood fell on the bark of the dog-wood tree, and made it red, and the bark has been red ever since.

In these stories we see nothing to excite either admiration or respect,—respect for high moral qualities, or admiration for power and intelligence, even though unaccompanied by moral excellence. Their greatest divinity is outwitted by simple Indians; he is held fast by a couple of creaking trees; he is represented as filled with petty conceit, because he happened to catch a fine porcupine; he is petulantly angry with his own members without a cause; and at last he revenges his own carelessness upon himself, in a manner unaccompanied by dignity or by any thing to excite respect. And when we find that this is the picture of their divinity presented to the wondering mind of the Indian child, and that “eating to the full” is the principal joy of the happy hunting ground, we are not surprised, when enquiring about their belief in a God and in a future state of reward or punishment, to receive the answer: “Oh! these are things that the old people used to talk something about, but we know nothing about them.” High aspirations they have none, for where could they learn them in such stories as these? Respect for their Gods they have none, for their attributes are those of pettiness; and in many of their stories they are simply objects of ridicule. And as none of their tales that I could collect represent woman as having a place in even the meagre joys of the happy hunting ground, whilst toil and hardship are her share on earth, we were not surprised to hear that, on the birth of a girl, the Indian mother will often dash its head against a tree and kill it; and exclaim, “It is only a wretched girl, and it shall not grow up to bear the miseries I have had.”

CONCLUSION.

Such, then, are the characteristics of the nursery tales of the various people who have occupied our attention; and we may now consider, very briefly, what influence they are likely to have in forming the character of the people who have listened to them from their earliest years, and have imbibed their lessons, though they may be quite forgetful of the source from which they have come.

Self-reliance and homely courage, and the consequent respect of his neighbours—honour and respect for women, though it may be of an unromantic character—and the simple happiness of domestic life—these are the teaching of our genuine English stories; and long may it be ere these cease to be qualities of Englishmen.

Brilliancy of fancy, and elegance in all their works; admiration of beauty, but still greater admiration of goodness and intelligence; devotion to the supreme kingly power, and constant reference to him as the source of honour, and the moving spring of action—such are the prominent features of the French tales; and such characteristics that nation has exhibited for centuries, and in spite of manifold revolutions still exhibits at the present day.

Religion, forming an essential feature in their thoughts, and brightening up a life which would seem to strangers almost inseparably surrounded with horrors—unsuspecting purity of family life, and an imagination which weaves the one bright spot in their island into all their fancies, and then multiplies it a hundred fold—industry and contentment; such are the characteristics of the Icelandic stories; and whilst such continue to be, as they now are, the characteristics of the people, we may rather take a lesson from them than pity them for living where fear and death would seem to have placed their natural abode.

And when from the present we turn to the past, we see in the once splendid and powerful Greek nation the fruits of their nursery tales; for gods, powerful, it may be, but incredibly mean in their guilt and cowardice; splendid in their intellect, but groveling in their desires; subject, like created beings, to the decrees of a superior fate, and the highest of them often unable to accomplish his desires even when honourable and worthy of success; base in family relations, and deceitful one towards another; gods such as these, presented to the youthful mind, could but degrade its aspirations, and prepare the way for that fall which the Greek nation has experienced, and in which Rome also shared; when Greek impurity took the place of Roman chastity; when selfishness and cunning superseded patriotic self-devotion and truthfulness; and when Greek literature and Greek mythology had supplanted the more homely nursery tales of the early Roman period.

We need not dwell upon the effects of the Hebrew stories upon their national character; for the rise and fall of that wonderful people, their prosperity and their reverses, corresponding with their faithfulness to the teaching of these stories, and their influence throughout the world at the present day, require no comment at our hands. But when we find a nation like the one we last reviewed, whose tales are a blank for the future, though they are not without virtuous teaching for the present, we may perhaps be stimulated to impart to them, more than we have hitherto done, those stories which we prize above all teaching for our own children, and which often help us on our way here, and open to us the promise of a bright hereafter.

THIRD ORDINARY MEETING.

ROYAL INSTITUTION, Nov. 12th, 1866.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

The Secretary read a letter from Captain Sir James Anderson, Associate of the Society, acknowledging the congratulatory Resolution accorded to him at the first ordinary meeting.

Dr. Birkenhead, Mr. E. Davies, F.C.S., Mr. E. Brown, Mr. W. B. Halhead, the Rev. George Butler, M.A. Oxon., and the Rev. H. M. Stephenson, M.A. Cantab., were balloted for, and duly elected members.

Mr. ARCHER exhibited a large specimen of Asbestos, picked up on the coast of Newfoundland, by Mr. Charles Bowring, Jun.

Mr. T. J. MOORE exhibited the following :—A necklace composed of specimens of the *Dentalium*, or Tooth Shell. It consisted of fifteen links, and about fifteen shells to each link, strung upon fine thread, and was supposed to have been brought from the South Seas, by a collector in the service of the late Earl of Derby. Also some nuts found in bundles of the *Piassava*, or Bass, imported from Bahia, one of which nuts contained two full grown larvæ of large beetles, probably *Longicornes*. The *Piassava* is a species of palm, the fibrous covering of the stem of which is brought in large quantities to Liverpool, for brush making, &c.

The following paper was then read :—

SUGGESTIONS AS TO POSSIBLE LURKING-PLACES FOR INFECTION, IN OUR DWELLINGS AND TOWNS.

By ALFRED HIGGINSON, M.R.C.S.

At a time when the rate of mortality in this and other large towns is exceptionally high, so as to justify special inquiry by the Government, and additional committees of our Local Authorities, I need hardly apologise to this Society for bringing before them a suggestion, based upon a philosophical principle long recognised in other important cases.

When the British Association for the Advancement of Science met at Glasgow, in 1853, our late member, Mr. Thomas Dobson, B.A. of Cambridge, presented a report on the relation between explosions in coal mines and revolving storms. In this elaborate comparison of recorded storms with recorded explosions in the years 1851, 1852, and 1853, there is presented a mass of evidence which the most sceptical can hardly resist. The rational explanation of the connection between these two sets of phenomena is a ready one. The passage of a cyclone, or revolving storm, is accompanied by a sudden fall of the barometer, indicating a diminished pressure of the atmosphere. This extends to the cavity of the coal mine, as it does to all other places over which the storm passes. Connected with the mine are, it may be, old workings, blocked off more or less imperfectly, and natural cavities or fissures in the strata, always giving off more or less of combustible gases. The atmospheric pressure being suddenly diminished, this oozing of gas is

greatly promoted, and, if not counteracted by increased ventilation, an explosive atmosphere is produced in the mine, and waits only the contact of an open light to cause the dread result. Assuming then this principle, as clearly proved in the mine on a large scale, I think it admits of being carried usefully into the consideration of other cases, particularly those of our sanitary arrangements in hospitals, private houses, ships, &c. What is true of the old working of the mine is true of any cavity whatever, which is not closed hermetically from the air, be it a well or cess-pool, a vault or coffin, a roof cavity, floor or ceiling, a cavity wall, lath and plaster partition, shut up closet, cupboard, drawer or box, or even the sewers and drains in our towns and houses. In every one of these instances, a rise of the barometer will cause air from without to be condensed into the interior cavity through all the chinks and crannies; and on the fall of the mercury it will ooze out again, pure and simple, or fœtid and poisonous, as the case may prove.

My object in this paper is to draw attention to the *probable* importance, possibly the *great* importance, of keeping this idea present to the mind of the architects of our houses and hospitals, and to all who are brought in contact with disease of an infectious nature. Let us for a moment picture to our minds a bad case of scarlet fever, in a house where there are many children: all but the sick child are sent away, and when the case is ended the room is fumigated, white-washed, and papered, ere the family return; but, alas! the disease attacks perhaps another, and another, and we dare not say the issue. Where did the infection lie hid? May it not have lurked in some shut-up cavity, from which a low state of barometric pressure caused it to come forth?

In attempted explanation of the spread of disease, we find terms used,—“atmospheric influence,” “contagion,” “infection,” “epidemic” “zymotic,” “cholera cloud,”

“fever cloud,” “typhus wave,”—all implying that morbid influence has been lurking somewhere, and has shown itself in localities ready to receive it. Whether, in such hiding places as I have pointed out, morbid matters may gain a greater potency, I know not. I am simply desirous that, in our future hospitals and dwelling-houses, these possibilities shall be banished as far as may be.

I have been led into these remarks, in consequence of my attention having been of late directed much to hospital construction, with a view to the building of the new Southern Hospital in Liverpool. Two plans may be adopted to remedy the supposed evil: to have open ceilings and roofs, &c., or to make all such cavities communicate freely with the *outer* air;—at all events, let them not be *shut up*, which means, communicating by chance openings with the apartments adjoining. I have asked professional brethren, and architects, whether the ideas I have now brought forward have been hitherto promulgated, and acted on, but cannot find that they have, except very partially, as a precaution against the dry rot, to which it is known that free ventilation is decidedly adverse.

From these sources of possible harm in our houses, I turn briefly once more to the subject of sewers and drains. It is a well-known popular remark, that “we shall shortly have rain, the drains smell so bad.” Of course, the atmospheric pressure being diminished, the noxious effluvia escape into the streets and houses through any untrapped opening. Nay, even the trapped openings are not proof against the pressure, which is greater than a two or three inch column of water in the trap. The only way of preventing the escape of foul air from sewers and drains is by adopting a system of ventilation, which shall even cause an in-draught at all such openings. I have already advocated such a plan before this society, May 19th, 1845, and again before the Health Section of the Social

Science Association, at their Liverpool meeting, 1858. My proposal was, to connect the main trunks of sewers, near the river openings, with the fires of steam-engine furnaces, thus drawing out the foul air and burning it; fresh air would, in this way, be drawn in at the untrapped openings.

The practice of connecting rain water spouts with the sewers, for the purpose of ventilating them, I believe to be both inefficient and injurious. Why should the air go forty or fifty feet up a spout, rather than escape at the first gulley hole, or untrapped sink-stone, particularly the latter, to which it is drawn by all the rarefying power of fires in the house? I thus consider it inefficient. Also, it seems to me injurious, because in rain, the rush of water down a spout carries air with it into the sewer, and so causes it to blow out elsewhere. I have heard of this arrangement being put in practice to blow a furnace; but I cannot find where to refer for my authority.

[At a subsequent meeting of the Society, April 15th, Mr. Higginson stated that he had tried the experiment, here alluded to, with partial success; enough to establish the principle, but not on a scale, or with a certainty, sufficient to warrant its exhibition to the Society. Dr. Birkenhead and Mr. Davies, at the same time, expressed themselves as familiar with the fact of falling water carrying air down with it, forcibly enough to be made of practical use, in the laboratory or elsewhere.]

One other remark, on the danger of unventilated sewers, and I close my paper. I am convinced they are instrumental in conveying odours (then why not infection?) from one part of the town to another. As an instance, I remember walking from Upper Parliament-street to Netherfield-road, early one fine, still, frosty morning, many years ago: the air rising from the sewer-eyes being warm and moist, a deposit of moisture took place, and the grates were wet, and the frosty

rime gone from them. In Parliament-street and Bedford-street, these exhalations smelt strongly of turpentine, the source of which would be, no doubt, the Distillery in Lower Parliament-street—from a quarter to half a mile distant. I walked on, thinking no more of sewer smells, till in Bedford-street north, or Elizabeth-street, I wondered at a strong and disgusting odour, as of a flock of dirty sheep passing. None were to be seen, nor had any such disturbed the hoar frost on the ground that morning; but I was close by a sewer-eye, to which I traced the smell, and a few hundred yards lower down the hill were the abattoirs in Trowbridge-street, from which, no doubt, the odours emanated. Again, in Shaw-street and Netherfield-road, the smell of a tannery assailed me from the sewer-eyes, originating, no doubt, from Bevington Bush, or thereabouts.

These are no fancies of mine, but simply the plain facts recorded. But a few months ago (9th of April last), I came from Everton along Breckfield-road. A steady S.E. wind brought the smell of one after another of the sewer eyes, so that I knew, three or four yards off, where they were.

In conclusion, I may sum up thus:—I have, in this paper, launched the idea that whatever may be the intimate nature of infection in any infectious disease, such an agent may be hidden into, and eliminated from, various lurking-places in our dwellings, &c., by the variations of temperature and of atmospheric pressure; and that it may be conducive to the public health to provide against such a possibility by improved structural arrangements. Also that the sewers are subject to the same influence, and will continue to convey and give out unhealthy exhalations in streets and habitations, until an efficient scientific system of ventilating them be adopted.

FOURTH ORDINARY MEETING.

ROYAL INSTITUTION, Nov. 26th, 1866.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

The Rev. F. H. Curtis, M.A. Oxon., the Rev. W. Kennedy Moore, M.A., Mr. Joseph Boulton, Mr. Alfred Hopps, Rev. R. England Long, Mr. Christian Flück, and Mr. E. Jones, B.A., were balloted for, and duly elected members.

After a brief conversation on miscellaneous subjects, Dr. Ginsburg left the meeting, and the chair was occupied by Isaac Byerley, Esq., Treasurer, when the following paper was read:—

NOTES ON THE LOCAL, NATURAL, AND GEOLOGICAL HISTORY OF RAINHILL.

BY THE

REV. H. H. HIGGINS, M.A. CANTAB., F.C.P.S.

A CURIOUS collection of anecdotes might easily be made relating to persons unacquainted with objects of interest belonging to the locality in which they reside. I knew a young woman, strong and healthy from her childhood, who, on her eighteenth birthday, saw, for the first time, a fine river and a bridge, only a few hundred yards from the house in which she had always resided. It is trite to remark, that numbers of the inhabitants of large towns would not, even once in their lives, visit the sights of the town, if an occasion did not arise inducing them to lionise a stranger; and I think it is quite possible that some of the inhabitants of Rainhill know more of the scenery of Wales, or of the English Lakes, than of the far less attractive, but not altogether uninteresting, features of their own neighbourhood.

The township of Rainhill, together with the townships of Bold, Cronton, Cuerdley, Ditton, Eccleston, Parr, Penketh, Prescot, Rainford, Sankey, Sutton, Whiston, Widnes with Appleton and Windle, together form the parish of Prescot. These names sufficiently indicate the position and boundaries of the township of Rainhill.

In speaking of our district or neighbourhood, I would be understood to refer, not to the exact limits of Rainhill, but to the country lying within a mile, more or less, of the church at Rainhill as a centre.

The first mention of Rainhill occurs in *Domesday Book*, compiled in the reign of William the Conqueror (A. D. 1086). There it is called "Rannle," which indicates the derivation of Rainhill to be the two words "Ran," signifying a crest or ridge, and "Le," a field. Ranle easily became Rannle, and hence Rainhill. The literal meaning then of Rainhill is the "Ridge-field," a field occupying the ridge or summit of a hill.

In the reign of Edward III. the manors of Sutton, Eccleston, and Rainhill were held by William de Norres. From the very ancient family of Norres, of Speke, Rainhill passed by marriage to Sir Richard Molyneux, and from the family of Molyneux again by marriage to the family of Lancaster.

The names of Eccleston, Pemberton, and Eltonhead appear in the early history of Rainhill, as tenants or proprietors. The neighbouring district of Halsnead was formerly a hamlet in the township of Whiston; and for the occupancy of Halsnead service was due to the court at Whiston. This service was annually discharged by the payment of a white rose into the court.

Of remains interesting to the antiquarian we have but few. The injurious effect of the allotment of so large a district to the ancient parish of Prescot is seen in the scarcity of churches. Until comparatively a recent date, no churches were found in the townships of Eccleston, Parr, Sutton, Rainhill, and Whiston. Those of Bold, Cronton, Cuerdley, Ditton, Appleton, and Windle are still in this respect deficient.

Several localities in the neighbourhood are distinguished as being the sites of crosses. Thus, we have Peasley cross, Marshal's cross, and Kendrick's cross. This last may possibly have been originally Rendrick's cross; for in 1626 John Rendricke was a person of consideration, residing at

Rainhill. He was the founder of a grammar-school in the township of Ecclestone.

The bridle road leading from Mill Lane to Prescott has the ancient name of Two-butt Lone, signifying, perhaps, a lane of the width of two butts, and reminding us of the time when the archer's butt might be a familiar standard of width.

In an open field, which, on one side is bordered by the brook crossing the railroad a few hundred yards east of Rainhill, is a cavity filled with water almost overgrown with grass and weeds: this is the St. Anne's well, which formerly enjoyed a rather extensive reputation for the healing virtues of its water especially in cases of diseases of the eye. I once saw at the well, a poor girl, who, with her companion, had come from the neighbourhood of Billinge to bathe her eyes with the water. She was nearly blind, but seemed full of hope that her pilgrimage would be successful.

A house situated to the south of Rainhill Stoops is known by the name of "The Manor House." The porch is ornamented with two rosettes and other carvings in stone, and bears the date 1662.

A house not far from Lea Green, in the township of Sutton, bears the name of "The Moat House." The moat, which is now filled up, was of unusual extent. Houses of this kind, in retired situations, were not intended to be places of military strength; but in the times of the civil war, moats and other slight defences were often effectual in guarding against the sudden attacks of marauding parties in search of plunder. The Moat House dates, probably, from the time of Charles I.; and articles of silver have been found buried in the soil of the garden. A few years ago, the old house, with its quaintly cut yew trees, was an object of picturesque interest; and in early spring, when the green lawn reaching to the moat was covered with golden tufts of the daffodil, the scene possessed a homely beauty of an order

which was by no means commonplace. I have not been able to confirm the tradition of an underground passage connecting the Moat House with another residence at some distance.

The most interesting, and probably the oldest, residence we have in our vicinity is Rainhill Hall. I have not been able to ascertain the history of this house, further than that it passed by marriage from the family of Lancaster to that of Fleetwood. Rainhill Hall seems at one time to have been, like many other old houses, in the form of three sides of a quadrangle. One portion is detached, and other portions have been added, so that the ground plan is without uniformity. The windows in the detached portion indicate a style of workmanship more elaborate than ordinary; and from the architectural details I am inclined to think the house was built before the year 1600. A part of the building was for many years used as a chapel, and was attended by Roman Catholic families from Bold and other neighbouring townships. Rainhill Hall is now an exceedingly picturesque farm residence: the ivy-covered walls, and the old garden, with its quaint and singularly constructed sun-dial, and the curiously carved mullions of the windows, are such as might equally delight the antiquary and the artist.

The chief artificial features of the district are the railroad and the high road from London to Liverpool. Of the former I need say nothing: the railroad is I think pretty well appreciated.

The high road is interesting to an observer of character. It is one of the chief routes for humble pedestrians from London to the Western and Northern world; and as Railway Directors have not succeeded in proving to the satisfaction of everybody that it is cheaper to go by rail than to walk, great numbers of needy travellers prefer the latter alternative. Besides the crowds of poor Irishmen who at certain seasons

of the year appear in very characteristic attire, every half-hour, or less, brings along the road a group of foot-sore passengers, or a solitary traveller, evidently from far away; their looks and their clothes in every case showing more or less of their past history. It is sometimes a hopeful, but oftener a mournful, tale that is thus told.

“ And such is human life; so gliding on,
It glimmers like a meteor, and is gone.
Yet is the tale, brief though it be, as strange,
As full methinks of wild and wondrous change,
As any sung of old, in hall or bower,
To minstrel harps at midnight's witching hour.”

Some I think on our road are thankful to the friend who has provided for them the travellers' rests, giving them also at the same time, by appropriate inscriptions, “sermons in stones.”

I now proceed to give a few notes on the Natural History of Rainhill, supplying the names of some of the best things (in the collector's use of the term) I have myself met with in the immediate neighbourhood.

The wild animals of our district do not require a lengthened notice. On a still summer night, in some of our quiet lanes, may be heard a low rustling amongst the leaves at the bottom of the hedge row; it may prove to be occasioned by a hedgehog,¹ a truly nocturnal animal; which, if it appeared by day, would soon be extinct, for it is cruelly treated alike by men and boys wherever it is found.

We have also the field shrew,² commonly regarded as a mouse, but which is more nearly related to the hedgehog. This little creature, which is easily known from the field mouse by its long and pointed snout, has for centuries been an object of superstitious dread and dislike. It is very quarrelsome, and if two are placed together in a box, one of

¹ *Erinaceus Europæus*.

² *Sorex araneus*.

them will soon kill the other ; but it ordinarily feeds on insects, and is perfectly harmless. It seems, however, to have some noxious qualities, for though cats will readily kill shrews, they will never eat them.

Time will not permit me to say much of the Birds of our neighbourhood.

A large flock of lapwings have for many years frequented a field on the Elton-head Farm ; they disperse at pairing time, but return regularly in the autumn.

Among the less common birds that I have noticed, are the Kingfisher, the Red-backed Shrike, the Wheat-ear, the Whinchat, the Redstart, the Water-rail, and the Chiff-chaff.

But perhaps the most interesting bird that we have is the Greater Pettichaps,³ or, as it is now generally called, the Garden Warbler. This bird arrives in the beginning of May, and its song is most frequently heard in the neighbourhood of houses. Next to the Nightingale, it is the sweetest songster amongst all the British birds. Its notes are less powerful, and its strains less impassioned, than those of the nightingale ; but it sings at intervals the whole day long, hiding itself so cleverly amongst the foliage, that even when not more than a few feet away, it remains unseen. It is not a common bird anywhere, but I think, from the numbers I have heard in this locality, that, for some as yet unexplained reason, this charming little songster has a preference for Rainhill. I have heard it in various gardens, on the hill behind the church, in the lane leading to Halsnead, in my own garden, and several other places.

Amongst Insects, the most popular tribe is undoubtedly that which includes the butterflies and moths. Of the butterflies we have but few ; but occasionally an unexpected species appears as a single specimen ;⁴ and in 1865, no less than three kinds were in my own garden that I had not seen

³ *Curruea hortensis*.

⁴ *Melitæa Artemis*, in 1861.

since leaving the South of England. Moths are abundant.⁵ Many of us have noticed in the early spring, the catkins of the willow: but perhaps as we have seen the little golden tufts quietly enjoying the beams of the April Sun, we have little suspected what a carnival is held around them when night has fallen. Moths of various kinds are attracted by them in scores, and hold high festival undisturbed, even by the lantern of the entomologist. If only for a single night we could see in the dark hours as well as in the light, we should wonder not a little at the hundreds of beautiful moths that in a summer's night make every hedge, bank, and every field, a scene of marvellous animation. This may be confirmed by any one who will make the experiment of what is termed, "sugaring a tree:" that is of spreading upon the trunk a mixture of treacle and rum. I have seen at Rainhill, on a tree so prepared, at one time, nearly a hundred fine and beautiful large moths, each one pushing and shouldering its neighbours, the better to get at the luscious intoxicating drops. Perhaps not more than one out of all the number might be wanted, but from the fatal influence of the seductive nectar all are alike at the disposal of the collector, and may be taken off the tree even by the hand.

There is much that is pleasant in collecting Moths, but far more in first obtaining the caterpillars and watching their growth and changes. A moth fresh from the chrysalis is always exquisitely beautiful. The best of all plans for keeping caterpillars is, simply to use a preserve pot with a little sawdust in it, and to lay a piece of glass upon the top. The food may be changed every other day.

Beetles are not generally popular, and I shall say very little of them; but there is one occasion when their

⁵ *Gortyna Flavago*, *Mamestra Persicariæ*, *Miana arcuosa*, *Celæna Haworthii*. Out of the 294 species of British NOCTUINÆ mentioned in "Stainton's Manual," I have taken 74 species in my own garden, or within a few yards of it.

appearance is associated with wholly pleasurable feelings—I mean, during the first bright days of spring, when the field path or the glaring high-road is literally alive with busy shining beetles, coppery or brassy green, purple or black, all hurrying as if their lives depended on their haste; which, in fact, is sometimes the case if a collector passes who has to hunt in his pocket for a pill box. But, after all, the most productive places for the Beetle tribe are our many quarries, especially a large one near the Prescott Road.⁶

On a glowing summer's day, just where trees form a chequered shade, may be noticed an insect poised in the air, with whirring wings basking in a gleam of sunshine—a step nearer, and it is gone into the shade where the eye cannot follow.⁷ It belongs to a numerous tribe which forms a portion of the vastly more numerous order of flies with two wings. No two-winged fly has a sting.

The four-winged flies are extremely numerous, and amongst them are the tribe, which of all insects are the most interesting—I mean the Bees. There are about a hundred and fifty kinds of British Bees.⁸ Volumes have been written on the habits of the Hive Bee. Almost every species of bee has its own peculiar habits and life history. Rocky banks at Cronton, Huyton Quarry, and many other places nearer to Rainhill, harbour various kinds, and when the whitethorn becomes green, merry little bees sun themselves on every spray, and form burrows in every path.

Mason Bees, Carpenter Bees, Leaf-cutting Bees, and a tribe of gay waspish looking bees, which, like the cuckoo, lay their eggs in nests not their own, all these, and many more, are found in our district. If any one wishes to study or

⁶ COLEOPTERA.—*Cychrus rostratus*, *Hylobius abietis*.

⁷ DIPTERA.—*Helophilus versicolor*, *Sericomya superbiens*, *Chrysoclamis cupressæ*—all rare insects.

⁸ HYMENOPTERA.—Two of our most beautiful bees—*Andrena cineraria*, and *Anthidium manicatum*—are not uncommon in this locality.

collect insects, he may be sure that none will better repay attention than the Wild Bees.

It is to be feared that few who have lived long in the country have never had to complain of the ravages of slugs and snails.⁹ Slugs are altogether too common in our gardens ; and, to make matters worse, gardeners often thoughtlessly destroy toads, the natural enemies and consumers of slugs. The wall snail, with its marbled shell, and the garden snail, the common oddie of the children of the South of England, are rare in Rainhill, though common in Cheshire. A very few of the garden snail may be found by the brook crossing the railroad near St. Anne's Well.

Other species, having shells small in size but exquisitely formed, some transparent as crystal, others horny, and others beautifully sculptured, are found on the under side of stones, or on decaying timber ; but shells of still greater variety are easily found in all the pools, and rivulets, and ponds of the neighbourhood.

These form an admirable stock for a fresh-water aquarium. Ten or fifteen species are easily found, and live well in a fish globe half full of pond water. They do not require feeding, but it is better to have some sprigs of a green fresh-water weed in the aquarium.

The flowering plants to be found in the neighbourhood of Rainhill are not very remarkable, either for variety or rarity ; yet a walk in the month of July across the Hall Farm, and along the lanes between the Hall and Cronton, affords opportunity for collecting about eighty kinds of wild flowers. The district to the north of the railroad is less productive, and as St. Helens is approached, the unfavourable influence of the alkali and other chemical works on vegetation becomes more and more manifest. Waste places, shady undisturbed nooks, double hedge-rows, and the broad green

⁹ MOLLUSCA.—*Zonites excavatus*, *Zonites radiatulus*, *Planorbis imbricatus*.

sides of rural lanes are becoming every year more scarce. Yet though such places are treasuries of floral wealth, it is perhaps unreasonable to regret their disappearance, when it is remembered that they have given place to the better and more intelligent plans now adopted in the cultivation of land.

On the south of the railroad, near Lea-green, is a small wood called Hangsdale's wood, in which the under-growth is low, and the trees are mostly small; yet by the number of plants found there, which do not occur anywhere else in the neighbourhood, I am inclined to think the soil has never been ploughed, or at all events has been undisturbed for a long period.

First, the Sanicle,¹⁰ a plant with dark green glossy leaves and valerian-like flowers, deriving its name from healing virtues memorialised in an ancient proverb, "He needs neither physician nor surgeon who hath Bugle and Sanicle."

There also grows the Sweet Woodruff,¹¹ which when gathered has no scent, but, dried in small bundles, communicates a deliciously fresh perfume to linen amongst which it has been placed.

Cow-wheat¹² is abundant there in July; its flowers of a pale gold colour resemble the pendant of an ear-ring.

The Wood Melic grass, and the Giant Fescue grass, both of them extremely graceful plants, are to be included in the same list.

The wood contains a single plant of Saw-wort,¹³ a purple flower of considerable size. It was growing there this Autumn, just where it grew seven years ago. There is a plant or two of the same flower growing close to the river side at Speke Hall. Except in these two places, I believe the Saw-wort does not grow any where nearer than two or three miles beyond Warrington.

¹⁰ *Sanicula Europæa*.

¹¹ *Asperula odorata*.

¹² *Melampyrum pratense*.

¹³ *Serratula tinctoria*.

These are exiled flowers, though indeed they are not correctly speaking exiles; it is that their kindred have died away from around them, not that they have been banished from their relatives, or accidentally carried to a distance; these solitary plants suggest questions of the very highest botanical interest, but which time does not permit me to discuss.

The changes, agricultural and scientific, that have taken away so many wild flowers have brought us a few. The banks of the railroad near Lea Green are bright in the Summer with the purple and gold of the cut leaved Mallow, the Goat's-beard, and the St. John's wort.

I must not leave the flowering plants of Rainhill without referring to the great beauty of the borders of some of our ponds; on the Elms Farm, and one especially on the Hall Farm near the Lovers' Lane. The Marsh Cinque-foil, the Purple Loose-strife, the Marsh Forget-me-not, two or three Speedwells, one a rare species, and many others, form a floral ring, bright with all the colours of the rainbow, reminding one of what quaint old Michael Drayton, who was born three hundred years ago, sung of flowers.

"Blessed be God for flowers;
For the bright, gentle, holy thoughts that breathe
From out their odorous beauty, like a wreath
Of sunshine in life's hours."

Our district is rich in the Fern tribe. Friends from the south of England passing along our shady lanes, and even by ordinary hedge-rows, have been much struck with the abundance and luxuriance of our common species of Fern.

The common Polypody, the Bracken, the Male Shield-fern, the Broad Shield-fern, the Lady Spleen-wort, the Hart's-tongue, and the Blechnum are in profusion. The common Spleen-wort occurs sparingly on the walls of the railroad embankments. The Prickly Shield-fern, the

finest of all the Ferns for the garden or the rockery, grows in lanes and plantations near Cronton. The Royal Fern, the Oak Polypody, and the Beech Polypody, the Mountain Shield-Fern, and the Wall-rue are growing within a few miles of this place. Thus we have fourteen species of Ferns within a short distance; and of these I think I have seen more than twenty varieties, so distinct as to have received names.

Such is the love for these graceful plants, that single specimens of rare varieties are priced in the London catalogues as high as from two to ten guineas; and it is an interesting fact that several of these costly varieties were first discovered and sent to London by a cottage botanist,¹⁴ who found some of them in the neighbourhood of Rainhill, others, and I believe the best, in the direction of Tarbock and Hale.

The plants, lower in the scale of vegetation than the Ferns, are comparatively little known; yet they well repay attention, and have this peculiar advantage—that many of them are found in perfection during the winter months.

The Horse-tails present perhaps the best illustration in miniature of the plants which formed, in the hot and steamy days of the carboniferous period, our beds of coal; and even now the growth of the Marsh Horse-tail, in Halsnead Wood, reminds one of a tropical jungle. But to see it properly, the explorer must walk along the bed of a little brook. The most beautiful of all the Horse-tails adorns a bank, where all else looks dingy, at Helbess Brow, close by St. Helens. This is the Wood Horsetail, not by any means a very common plant.

About five hundred kinds of Mosses grow in Britain. Some of the finest and most beautiful of these—as the Hair Moss and the Urn Moss—are seen to great advantage in the quarries, or delfs as they are here called, especially the large

¹⁴ J. Morris, Rainhill.

quarry at Pex Hill. As soon as the winter's snow is gone, any one may there see many square yards of the quarry floor covered, as with a close array of Fairy Foresters in green, each holding up a crimson-pointed spear. Mosses grow beautifully in pots the size of coffee cups. A collection of these little plants takes up but little room, and it is charming to watch them put forth their fruit. One hundred species may be found within a mile of this place.

There are more than two hundred species of British Lichens; some of these grow in the neighbourhood; but with one or two exceptions our local species are not fine. The little silver Green-cup moss is a true Lichen, and is easily found; its cousin, with the chalices beaded with crimson tips, requires more looking for. It may be gathered near the highest point of the hill, behind the Church. Lichens were much used for dyeing materials; some kinds are well known in Liverpool under the names "Cudbear," and "Orchella weeds."¹⁵ One of the Lichens, sold as an Orchella weed, grows on the wall just beyond the parsonage, as you ascend the hill.

Several tribes of plants follow, known only to the lovers of the microscope: such are the Desmidiæ and the Fresh water Algæ. Most of us must have seen these tiny vegetables, for it is hardly possible to look at the sides of a rivulet, or at a damp rock, without at least their colour becoming manifest to the eye. Nothing, however, can be more unpromising than their appearance, till they are placed under the microscope, and then not even roses and lilies can shew more exquisite forms. I have many species collected at Rainhill, but none of them is suited to be exhibited in public. Some of you may have noticed, on the left hand side of the railway going to Liverpool, just beyond the skew bridge, patches of a fine golden orange coloured plant adorning

¹⁵ *Urcularia scruposa*.

the rock; this is a *Conferva*, and an exquisite object under the microscope.¹⁶

Last in the botanical series come the Fungi, of which the most familiar example is the common Mushroom. More numerous are they in species than all the trees, and flowers, and ferns, and mosses, and lichens put together; they vary in size and weight from a grain of sand to large masses weighing many pounds. Some are exquisitely beautiful, others are simply disgusting. Fungi may be found everywhere, and at all times. The study of them has afforded myself more delight than any other pursuit in natural history; but I must not trespass on your patience by attempting a description of any of them. I may, however, say that of the collection of dried Fungi, exhibited in the Museum of the Royal Institution, Liverpool, the only collection, I believe, thus exhibited in any museum; the greater part were collected in Knowsley park, or at Rainhill.

In taking leave of the Botany of our district, let me strongly protest against the too common impression that in order to find an interest and a pleasure in wild plants, it is necessary to be a Botanist. Nothing can be more fallacious than this. It is true of plants as of all natural objects, give them a chance, and they will soon win their way into a very warm corner of your affections: give them, I say, a chance, don't despise them, and always pass them by as if they were not worth a thought; notice them, compare them one with another; or, better still, give up a yard or two of garden ground to them; and if when walking you see a wild flower that takes your fancy, bring it home and stick it in the garden, and see it grow; never mind the remarks which your gardener will probably make; try it for one season, and give it up the next if you feel inclined.

Rainhill, as its names ancient and modern imply, has for

¹⁶ *Ectocarpus aurens*.

its chief natural feature a rising ground which separates two small systems of running streams. It is, therefore, what is called in modern phraseology a watershed; but not one of any note. I have been told that in Wolverhampton there is a street in which the rain that falls on one side descends to the Trent, and by the Humber into the German Ocean; the rain that falls on the other side of the same street flows eventually by the Severn, and into the ocean through the Bristol channel. We have of course nothing to compare with this; but the streams on the north slope of Rainhill pass by the Roughdales through Parr into Sankeybrook, whilst those of the south and west slopes pass by Tarbock into the Mersey near Speke.

The physical configuration of Rainhill is, therefore, extremely simple, but as you pass onwards towards St. Helens, it is impossible not to be struck with the number of little valleys sloping in various directions, but all having northern outlets. The form of these valleys is very peculiar, so peculiar as plainly to indicate the way in which they were formed. They are tidal valleys, valleys that have been washed by the tides of the ocean. Now if we enquire what was the probable condition of our district at the time when the many little valleys of St. Helens were creeks of a sea shore, I should say Rainhill was then part of an island, or rather of a peninsula; all the flat lands of Speke and Ditton were under the sea, which swept round far to the east of Rainhill, leaving Appleton and Bold high and dry, but pouring its waters over the Sankey Brook district, and coming round by St. Helens to places within a mile of us on the north.

This was the condition of things probably not so very long ago, I mean since the appearance of man upon the earth, though how many thousands of years ago it would be a mere guess to suggest.

But if Rainhill was then an island, you must not think

of it as if it were then a verdant spot, with trees and flowers, and surrounded by a bright shore, with limpid waves rippling on the beach. Dank and chill, smothered with a barren mud; lifeless, unless indeed might be seen on the shore some crawling crustacean, or some shell brought from the far north; cold and lonely and miserable, not a sail on its waters, not a plant on all its acres of half frozen slime; for Rainhill was then only just recovering from a tremendous visitation. The icy waters of an Arctic sea had been sweeping clean over our whole district; in fact, if a voyager could have lived on that desolate sea, which surged hundreds of feet in depth over the place which is now Rainhill, he would have seen no land nearer than the mountains of Wales or Westmoreland; but no vessel could have existed on that terrible sea, covered as it was with icebergs, dashing and grinding against one another, with a power that would make a man feel himself but an atom.

I have heard that the breaking up of the ice on the Neva is a grand and a terrible spectacle, but what must have been the sight of a flood that bore the ruins of a mighty Arctic Continent: floating ice-hills carrying blocks of stone weighing many tons, and acres of mud and shingles, scooped from the shores of unknown Polar Seas.

Such was the movement which geologists term "the drift." It was the last of the great changes which have modified the shape and condition of our land and sea. I do not think there is any reason to regard it as a sudden or a transient change—it may have extended to thousands of years. It has left its marks on every part of our land. It has modified the shape of all our hills, causing the western sides to be steep, whilst the eastern sides are sloping. From the highest point of Rainhill this character may be well seen in the Orme's Head, the Bidston Hill, the Overton Hills, and the Billinge Hill, all of which are comparatively steep towards

the west. Even Rainhill has its steepest side on the west, as you pass down the road to Halsnead. As you pass over any ploughed field in Rainhill, you will find pebbles of various kinds—of rocks not known to exist nearer than Westmoreland or Scotland. How came they there? They were carried in floating blocks of ice, and dropped as the ice melted. A few days ago I visited a clump of trees on the very highest point of Rainhill, to see if I could find traces of the ice sea. There they were, in little streamlets of a white sand, left there, no doubt, when the tip of the hill was emerging from the icy flood. Just as when the waters had subsided still further, beds of silvery white sand were left near Ecclestone, on the way to Rainford. This sand, which is like no other sand in the neighbourhood, is much used in the glass works.

It is strange to think of Rainhill as at the bottom of a deep turbid sea, scratched and seamed and furrowed by the heels of mighty icebergs as they floated over, and bespattered by them with stones, black, green, and blue, quite unlike our homely red grit. It is stranger still, to think of our Rainhill as fairly buried under ground, perhaps under many feet of solid earth, so that no one could have visited the spot where we are now, except a gnome.

Now it is altogether improbable that whilst the south and east of England were immersed again and again in the depths of the sea, and were accumulating hills of vast extent, that we at Rainhill should have had no ups or downs in the world; and therefore it is probable that beds of earth were once on the sandstone that we now walk upon; but, if so, every trace of them is gone, slowly worn and wasted away by a process which is termed denudation, but which means nothing more than is now going on by the rains and floods of every year.

The rains and frosts are now breaking down every mountain top; not even the least bit that falls ever returns, but

gets washed down lower. It might require at this rate a million of years to level the mountain, but at last it would be but a heap, and even the heap would in course of ages be lowered to a plain. This is the kind of change which has produced results which astonish us, and which it was formerly the fashion to attribute to some wonderful convulsion of nature.

It was necessary to speak of the missing link, for we at Rainhill have nothing to show for the time between the new red sandstone and the traces of the icy sea, an enormous period, as unfit to be measured by years, as the earth's circumference to be measured by inches. Of this immeasurable interval, I shall say nothing, except that whilst it lasted, Rainhill, or rather the land in the latitude and longitude of Rainhill, enjoyed perhaps more than once a tropical climate, that the Elephant, and the Rhinoceros, and the huge Cave Bear may here have wandered through groves and jungles, like those of India or South America.

Any one disposed to enjoy the pleasure of a quiet reverie, may take his station opposite one of the deep cuttings to be found in the quarries of the neighbourhood. He will have before him a wall of rock perhaps 100 feet in height, the material of which is a compact sandstone. The age of the pyramids multiplied by many thousands would not reach the remote date when the materials of that wall were brought together. And yet the wall itself tells of countless ages passed before. Every grain of sand in that huge pile of rock was previously a portion of a far older crystalline rock, and the mass itself was formed just as the Burbo bank or any other sand bank, at the mouth of the Mersey is forming now. Its hardness shews that it has undergone enormous pressure, either from being at the bottom of a deep sea or from superimposed rocks now removed. The lines formed by its various beds shew that the whole mass has been tilted

up by a force acting from beneath, and the colour of the whole indicates that the sand of our sandstone was deposited in a sea which probably held in solution a large quantity of iron.

The new red sandstone formation has in our neighbourhood a thickness or depth of about 1700 feet; beneath it lie the coal measures, the unproductive portion of which, before the workable coal is reached, is about 1500 feet in thickness. It is plain, therefore, that if these beds were uniformly spread, we should have to descend more than 1000 yards into the earth, before we reached a single bed of workable coal. But more than one fault is known to occur in our district, and at Thatto Heath, which is almost close at hand, the beds below the productive coal measures are brought to the surface, so that it is quite possible that we may have mining operations brought nearer to us than they are at present.

FIFTH ORDINARY MEETING.

ROYAL INSTITUTION, MONDAY, December 10th, 1866.

THE REV. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

Mr. Elisha Smith, Mr. Hugh Fergie Hall, Mr. B. Benas, Mr. Peter Owen, and the Rev. H. H. Roberts, B.A., were balloted for and duly elected members.

Mr. T. J. MOORE exhibited the following recent additions to the Derby Museum:—

Two fine specimens, young and full grown, of Venus's Flower Basket (*Euplectella aspergillum*, Owen), found in moderately deep water off the Philippine Islands. Of this remarkable sponge, the first specimen approaching perfection was discovered by Mr. Cuming, the well-known collector of shells, and was described by Professor Owen in 1841; and until the present year no other example had been obtained. The small end is rooted in mud, some of which still adheres to the specimens. Small crabs inhabit the interior, and being too large to escape through its network, they are supposed by the natives to construct the sponge as an abode. They doubtless find their way in when very young, and there remain through life. Many species of Crustacea seek similar protection in the structures of other animals. This sponge is shaped like a cornucopia, but with the mouth fringed and covered with an immovable perforated lid. The full grown specimen is rigid, about twelve inches long, and presents the appearance of most delicate and elaborately interwoven network. The smaller example is not so far advanced in elaborate construction, and, while rigid in its lower half, is soft

and yielding in the upper. A large and fine series of these beautiful objects has lately been added to the British Museum, which also possesses Mr. Cuming's original specimen.

Specimens of some of the silicious fibres, from the base of the sponge, mounted by Mr. W. J. Baker, were exhibited under the microscope at the conclusion of the meeting.

A fine specimen of *Callianassa Turnerana*, A. White, presented by Mr. J. O. W. Fabert. This singular long-bodied Crustacean, somewhat resembling a cray-fish, appears periodically in the river Cameroons, and disappears in the course of ten days or a fortnight. The natives are very fond of them, as they are delicious eating; and as soon as they make their appearance in the river, the men leave their usual pursuits to catch them.

A fine Atlas-moth, from the Cameroons, collected and presented by Mr. Bowerbank. Some eggs of a Snake from North Australia, showing the young nearly ready to escape, presented by Mr. Pennington. Also a Sea-urchin, with long slender spines, and variegated markings, one of two obtained at Pulo Taya, in the China Seas, by Captain Berry, ship "Richard Cobden," Associate of the society. These specimens were submitted to Dr. Gray, of the British Museum, who described and figured them as new in the proceedings of the Zoological Society of London, 1866, p. 170, under the name of *Spatangus (Meretia) variegatus*.

Mr Moore presented to the society, in the name of the author, to whom the gold medal of the Royal Society has just been awarded, a copy of his elaborate and beautifully-illustrated paper, "On the Structure and Development of the Skull in the Ostrich Tribe, by William Kitchen Parker, F.Z.S.," about to be published in the *Philosophical Transactions* for 1866.

The following paper was then read :—

ON PILLAR STONES, STONE CIRCLES, &c.

BY THOMAS INMAN, M.D.

ON a previous occasion I endeavoured to show that the spread of nations, trade, or missionary zeal was much greater in days gone by than History had led us to believe ; and I noticed that names still current amongst ourselves had been borne by Eastern nations in the remotest antiquity. The subject then selected embraced many others, and when pointing out that signs ought to be studied as well as language, I remarked that it was a startling thing to find, in the most sacred places of some of our churches, a symbol used alike by the Freemason in his lodge, and by a Buddhist or Hindoo in his devotions when away from a Temple, and to see this side by side with another emblem, which was that used in Babylon to represent the sun. It is equally curious to discover that emblems supposed to be essentially Christian were in use amongst the Etruscans, who were old as a nation when Rome was an infant ; and that they have existed from time immemorial in those Eastern countries with which Europe has only just become acquainted.

If we turn from devices of small compass to those of greater size, we are struck with the same resemblance between the past and the present, and the geographically remote and near.

Stone pillars are to be met with in Great Britain, from Cornwall on the South to the Orkneys in the North, and they, alone or with stone circles, may be traced from Scotland to the plains of India.

Some of us may perhaps lament the infatuation of votaries

who could see in a stone a holy emblem, and pay their homage before it; and we may plume ourselves upon the increased intelligence of our own age; but the flattering unction is somewhat dashed, when we find reverence to a boulder existing in the highest circle of England, and that a black stone still remains in Westminster Abbey to perform a silent but important part in the ceremony of crowning each new sovereign. What we think and say about those of Tyre and Ephesus may be said by posterity about the Londoners of to-day; and some erudite New Zealander may descant learnedly upon the ideas of our Kings and Queens, who could only put a diadem on their heads while sitting upon a particular bit of rock.

So much has already been written upon the subject of pillar stones, circles, and cairns, that I cannot pretend in this essay to any great originality. The late Godfrey Higgins, in his *Celtic Druids*, almost exhausted every thing which could be said upon the matter in his time; and since then Colonels Forbes Leslie and Meadows Taylor have produced still more interesting details, and handled the subject in a way which leaves nothing to be desired. Dr. Moore, in *The Pillar Stones of Ancient Scotland*, has done much in a philological sense, and his labours supplement a very elaborate work on the *Pillar Stones of Scotland*, a copy of which I have not yet been able to procure.

In the present essay, my intention is to point out what we know about the reverence given to conical and pillar stones, circles, and cairns, and the way in which the present is linked to the past.

We find that in ancient Phœnicia, and elsewhere, there were certain forms of the Deity called Bætuli, which were a peculiar kind of conical shaped stones which were erected in remarkable places, and were from time to time anointed with oil, wine, or blood. The custom is supposed to have arisen

from setting up meteorolites; and we remember with interest that Diana of the Ephesians was said to be an image which fell down from Jupiter, doubtless a meteoric stone originally, and subsequently fashioned in a peculiar way. Eusebius (I quote from Smith's *Dictionary*), says that Bætuli were believed to be stones endowed with souls, and created by Uranus (Οὐρανός, the heaven). Bætulus, when personified, is called a son of Uranus and Ge, and brother of Ilus and Chronos.

The word Bætulus and its connexion with heaven and earth, the sun and time, induces us to bestow a few words upon it. If what Eusebius relates was true, each such stone would be supposed to be the habitation of a portion of the spirit living in heaven, and as such would be in the Phœnician tongue Beth-el, or in the Babylonian, Bit-il or Bit-ilos, *i. e.*, House of the Sun, which would readily degenerate into the Bit-helios, House of the Sun, ἥλιος of the Greeks; and it is from Greek writers that we hear of Bætuli.

I need not remind my hearers how Jacob, on the morning after his memorable dream, raised up the stone which he had used for a pillow, poured oil upon it, and called it Bethel. This coincidence would be insignificant if it stood alone, but it becomes important when we find that one of the ancient aboriginal Gods of Hindostan, and one to whom worship is still offered in a way we shall subsequently describe, is called *Betel*, or *Vetel*, and that he is represented apparently by an upright stone. Bætuli amongst Phœnicians, Betel amongst the Indians, and Bethel in Palestine are too closely allied in form not to attract our attention, especially when in all they are connected with a similar form of worship. It may be said that Jacob called the place, and not the pillar, "Bethel;" but as the place could only be recognised by the pillar, and the pillar was the very spot which he named, the objection stands for little.

It is tolerably clear that the pillar was sacred, and as such was anointed.

If we pursue this word as representing a sacred emblem, by investigating proper names apparently derived from it, we find Batalus and Bathyllus amongst the Greeks, and Vetulinus, Vitalis, and the Vitellii amongst the Romans; nor can I altogether pass by the fact, that the most ancient name amongst the French for the Phallus is spelled *Vit*.

When once the idea was received, that an upright stone represented the Deity, or one of his attributes, we can easily conceive that the imagination of man would vary the symbol. Some would select for the emblem a mass of vast bulk; others would prefer length to breadth; some would select a red, others a white colour, and adopt a curved, rather than a straight stone. The transition from a rough and unhewn block to a polished one would naturally follow as wealth increased, and rudeness merged into civilisation. As society began to indulge in luxury, we can readily understand how the tall stone would become the stately pillar, and the conical bit of rock would be the elegant minaret. A farther outgrowth from the ideal form would naturally follow the development of the primitive faith.

The simple stone was emblem of a single idea; one which ultimately expanded amongst the Babylonian and Assyrian races into the belief that the Deity was fourfold. There were four great Gods:—Arba-il, from whence the name of *Arbela*, so well known and so very ancient, was derived. What was at first a simple pillar, became now a four-sided obelisk, or a towering triangle, whose bulk told of vastness, whose pyramidal form perpetuated the ancient conical notion, whose height told of majesty, and whose four sides told of the four parties in the creation of mankind and the world in general.

As the playful fancy of the devotees of the Bætuli

increased with their luxury, the image became developed into forms known amongst the Greeks as *Hermæi*, ἑρμαῖ,—a word coming, I presume, from the Phœnician and Hebrew word אָרַם, *aram*, “to be high,” “to swell up, to exalt oneself;” or, possibly, from אָרַם, *aram*, “to be or to make naked,” “to be high;” there is also אֲרָמָה, *armah*, “craftiness, guile;” and אֵרֶמָה, *airemah*, “a heap of ruins or fragments.” Greek, ἑρμα.

If our etymology be correct, we shall expect to find that the *Hermæi* are some way connected with the Phallic idea (and with cunning?). That they are so is evident, in corroboration of which we quote an article from Smith.—“Hermæ were statues, usually composed of a head, generally that of the God Hermes (Mercury, it must be remembered, was represented as being very cunning, and as the patron of thieves), placed on a quadrangular pillar. Hermes presided over journeys, traffic, roads, boundaries, &c. He was represented by a block of marble or a heap of stones. To such heaps everybody who passed added a pebble.”

“Another form of making a boundary was a stone pillar (at first unhewn), the sacred character of which was marked by pouring oil upon it, and adoring it. The first attempt at artistic development was by adding a head, and afterwards other members of the body, at first with a symbolic meaning. *The phallus formed an essential part of the symbol; probably because the divinity represented by it was, in the earliest times, the personification of the powers of nature. So the symbol is described by Herodotus, who ascribes its origin to the Pelasgi. Pausanias gives a similar account, and adds that the Arcadians were particularly fond of the four-sided ornament.*”

“These Hermæ were much venerated at Athens, and every house had one. They were placed in front of temples, near to tombs, in the gymnasia, palæstræ, libraries, porticoes, and

public places ; at corners of streets, on high roads, as sign-posts, with distances inscribed on them ; and some are still to be seen at Athens with the names of victors in the gymnastic contests engraved thereon."

"In process of time a torso was added, and after that the quadrangular pillar was grooved, to indicate the legs." We need not pursue the history farther. But we may advert for a moment to the fact that stones were used in some places to typify the feminine rather than the masculine element of creation ; for example—the representative of the Paphian Venus, the most popular one of antiquity, was a conical stone. Tacitus thus speaks of it : "The statue of the Goddess bears no resemblance to the human form. It is round throughout, broad at one end, and gradually tapering to a narrow span at the other, like a goal. The reason of this is not ascertained. The cause is stated by Philostratus to be symbolic."¹

"In all Cyprian coins," says Lajard, *Recherches sur la Culte de Venus*, "from Augustus to Macrinus, may be seen in the place where we should anticipate to find a statue of the Goddess, the form of a conical stone. The same is found placed between two cypresses under the portico of the temple of Astarte, in a medal of Elia Capitolina ; but in this instance the cone is crowned. In another medal, struck by the elder Philip, Venus is represented between two genii, each of whom stands upon a cone or pillar with a rounded top. There is reason to believe, that at Paphos, images of the conical stone were made and sold as largely as were effigies of Diana of the Ephesians at Ephesus."

Again we read in the same Author, "Medals and engraved stones demonstrate that the hieratic prescriptions required that all those hills which were consecrated to

¹ *History*, book ii., c. 3.

Jupiter should be represented in a conical form. At Sycione, Jupiter was adored under the form of a pyramid."

Again,—"The cone was one of the symbols peculiar to many of the gnostic sects. It had sometimes a funereal sense. A cone in the possession of Mons. Lajard, and which was found at Aleppo, proves that in the first centuries of our era the conical form was also employed for Christian monuments, since the one in question has engraved upon it the bust of Christ, with the letters X P I C T O Y. Below the bust there is a fish.

Both the cone and the phallus had the double sense of life and death. The Divinity represented by the cone was androgynous; and the Author gives a plate of the individual whom he supposes to be Venus, of which I have attempted to make a copy. In different other medals of which he gives us examples, the Goddess is represented as a Hermes, sometimes as standing on a square stone. The union of ideas about the cone, the square, and the pillar are seen in the pyramids and obelisks, and the frequency with which altars were made conical, square, cylindrical, or with an union of all these forms. The cone was essentially a female emblem. The pillar was a male sign. The square, or the four-sided cone, was the emblem of the union of the sexes.

Lajard also adds, that "Monsieur Creuzer found amongst the ruins of Carthage a large conical stone, which he considered to be a representation of the female Venus." He also mentions many smaller cones which he had found in Greece, some of them bearing the name Aphrodite. In Gozo a conical monumental stone was found in one of the niches of the ruins of a temple which had been sacred to Astarte. Many other small cones have been found that have evidently been worn in personal ornamentation, or as charms, and these have usually been engraved with doves or other mystic devices. It must be noted that Lajard

is speaking of the androgynous Venus, the Celestial mother from whom all creation was supposed to emerge, not the Grecian Goddess of desire.

On returning to one of the ideas—that of strength, or height, or both combined—which the Bætuli involved, we may ask if the *stone* was the only form it took? Surely, other emblems might be adopted to illustrate the same notion. They were so; and the stump of any tree, especially the oak, and the growing pine and palm trees, were almost equally sacred with the pillar. One of the ancient Hebrew names for the oak was אֵלֶּה, *Elah*; אֱלֹהִים, *Alah*; and אֵלֹן, *Elon*; the second of which, *i. e.* Alah, is one of the names of the Creator, and the original of the Allah of the Mahometans. When we recognise the fact, that the emblem was intended to represent length and strength, we can readily understand that the human thumb or finger, standing alone, might typify the same notion. Such was in reality the case; and these became, with the palm and pine tree, symbolic of the same thing. In Drogheda, there exists in one part a tall pillar tower, and in another a pointed rock, whose name is “The Lady’s Finger.” Both seem to have a similar meaning, and represent the Creator in the same form as that under which Hindoos worship him, *i. e.* as Mahadeva.

The varied forms in which the pillar idea has developed itself is very curious. A broken column is to this day an emblem of the death of a warrior or other conspicuous man. The ancient altars were of pillar form; sometimes cylindrical, sometimes four-sided, and sometimes triangular, as we have already noticed. Solomon adorned the two pillars, Jachin and Boaz, which he placed in the porch of his temple (see 1 Kings vii. 19–21), with abundance of lilies and pomegranates, whose mystic significance is well known to the curious; and the Christian hermits, of whom Simeon Stylites was a very conspicuous example, thought that a

dwelling upon and prayers offered from the summit of a pillar were pre-eminently proper. In this we see reproduced the notion current at the Temple of Surya, at Hierapolis, and thus set forth by Lucian. After describing the temple, &c., he says, "Moreover, we see in the vestibule two enormous phalli, thirty fathoms high, with this inscription—"These Phalli have been raised by me, Bacchus, in honour of Juno, my mother-in-law." After describing two other sacred images, conspicuous for their Priapic size, and sundry other things, he continues—"All those who raise phalli to Bacchus place upon their top wooden men (a custom still to be seen in many an ancient Hindoo temple)—why, I cannot tell, unless it be to imitate the man who ascends. And this is how the latter manages:—He passes a thick chain round the phallus and his own body; then he mounts by means of little bits of wood which stick out, large enough for him to stand upon; as he rises, he takes up the chain with him. . . . Having arrived at the top, he lets down another chain which he carries with him, and by its means he draws to himself everything which he requires—wood, clothes, utensils, &c. With these he arranges a dwelling, a sort of nest, in which he sits during the seven days he sojourns there. The crowd which arrives bring him gold, silver, or copper, and place these offerings before him, and then retire, leaving their names. Another priest is present who shouts these names, and when the top man hears them he offers a prayer for them. While praying, he strikes upon a brazen instrument, which makes a loud and discordant noise. The man does not sleep. . . . The reason of the ascent is, that the people are persuaded that the man, from this elevated spot, converses with the Gods, and asks from them the prosperity of all Syria, and that they hear his prayer, seeing that he is so near." There is strong reason to believe that the "high places,"

of which the Jews built so many whereon to offer incense, &c., were simple pillars, resembling in some respects the Lingams of Hindostan, and the round towers in Ireland.

The abundant use of pillars in sacred edifices seems to have preceded, for a long period, their use as ordinary architectural contrivances to economise space, or to increase elegance of design.

We have seen that the pillar was considered as a sort of embodiment of the Almighty in remote antiquity. There was also the expression "God is my witness," just as we have at the present day "So help me God." We have also frequent examples, amongst the criminal classes, of an expression equivalent to "As I now stand in the presence of the Almighty," as the sort of affirmation or oath to which they attribute the greatest sanctity. We shall be prepared, then, to find that the pillar was in ancient times used to represent the Great Judge as if present. In default of any other antique repository of ancient customs, let us turn to the Old Scripture writings, and glean from them the uses that pillars were put to. We find Jacob erecting one, מַצֵּבֶת, *mazebeth*, as a memorial of his dream, and a second one as a memorial of his wife Rachel. He also erects a pillar and a heap, as a witness of a compact, a sort of terminus, beyond which the contracting parties would not pass. Compare this with the Roman Terminus, or Hermes.

We then come upon two prohibitions, to the effect that the Israelites should not set up any standing pillar, מַצֵּבָה, *mazebah*, or figured stone (Levit. xxvi. 1),² as it, מַצֵּבָה, *mazebah*, was hateful to the Lord (Deut. xvi. 22); but it is clear that the pillars meant in the prohibition were unmistakeable phallic emblems, else we should not find Moses

² This verse is thus rendered in the Vulgate:—"Non facietis vobis idolum et sculptile, nec titulos erigetis, nec insignem lapidem ponetis in terra vestra, ut adoretis eum."

himself building an altar and twelve pillars, **מִצְבֵּה**, *mazebah* (Exod. xxiv. 4);³ nor should we have had the pillar of fire and cloud as the visible form assumed by the Almighty. Farther on (Deut. vii. 5),⁴ it is clear that the Phœnicians or Canaanites used pillars in worship, for the Israelites were told to destroy them, with the groves and graven images, when they entered the Promised Land.

Joshua sets up twelve stones, **אֲבָנִים**, *abnim*, in Gilgal, as soon as he enters Canaan, as a memorial; and the departing tribes set up what is called an altar, or a memorial; while in after times, Absalom rears up a pillar, **מִצְבֵּה**, *mazebeth*, for a remembrance of himself, as he had no child (2 Sam. xviii. 18). Of the two pillars of Solomon, I need not speak again; but pass on to the time when Josiah was crowned, and where we find him standing by a *pillar*, **עֲמֹד**, *amud*, as the manner was (2 Kings xi. 14).

From this it is abundantly clear that some pillars, then as now, were used as memorials of some important event, or of some departed man or woman, just as we erect columns to Nelson, Wellington, and others, or raise tombstones in all forms over our dead. It is equally clear that others had a phallic significance, which did not, however, in the smallest degree, prevent them being looked upon as divine emblems. Any one familiar with the sacred writings cannot fail to be struck with the veneration with which the *grove* was regarded by some, and the enthusiasm with which it was destroyed by others. The Hebrew word for that translated *grove* is **אֲשֵׁרָה**, *asherah*. This word has a number of relations—*ash*, *asher*, *asha*, *ashua*—and we have some cognomens compounded

³ In the Vulgate this verse runs thus:—"Scripsit autem Moyses universos sermones Domini: et mane consurgens ædificavit altare ad radices montis, et duodecim *titulos* per duodecim tribus Israel."

⁴ In the Vulgate this verse runs thus:—"Quin potius hæc facietis eis: Aras eorum subvertite, et confringite statuas. **מִצְבֹּת**, *mazeboth*, lucosque succidite, et sculptilia comburite."

from it, as *Ashbel* and *Ashban*. The significations are “heat, fire, man, woman, being, pillar.” Leaving philology here, I will copy the account which Fürst’s *Lexicon* gives of *Asherah*. He says, “The name is that of a Phœnician Goddess, who is sometimes identified with the Sidonian Astarte, and who stands beside בַּעַל, *Baal*. In usage, the word denotes—(1) the idol of this female deity *consisting of a pillar*, and it is identical with the image pillars of Ashera. (2) The female deity of the Tyrians, whose worship Jezebel introduced into Israel. (3) The image pillar of this Goddess, in whom a plurality of forces were united. The images of Ashera were upright wooden pillars, or stems of trees, whose tops and boughs were cut off, and which were worshipped as symbols of the Phœnician Nature-God, partly as the *numen* itself. The word is usually derived from אִשֶּׁר, *asher*, “the Goddess of good fortune;” but considering that *ashua* denotes a pillar, and אִשָּׁר, *ashar*, signifies “to be erect,” it appears to be more correct to explain *ashera* as “the spouse or husband,” and cognate to the Phœnician אִסַּר, *asar*, equivalent to Osiris.” I may add that אִשָּׁה, *ashah*, signifies “to be firm,” and “to be firmly fitted together,” a word which in itself unites the idea of an androgynous deity, and that intimate connexion between the sexes which produces a new being.

That the pillar stone was at the same time a phallic emblem, and the representation of the Creator, none can doubt, whose knowledge of ancient ways of thinking is great, and whose modern reading is extensive. In many a Hindoo temple, whose “adyta” are open to British though not to native eyes, a rude stone of curious shape represents the God. I cannot now lay my hand upon a narrative which I lately read, telling of the wink or leer with which the officiating priest of some temple in India pointed out the nature of the object worshipped, and of his request that the visitors would not tell the worshippers; but it recalled the lines of Moore—

à propos of Mokanna, the veiled prophet of Khorassan—"Ye would be dupes and victims, and ye are." It is impossible to read much of the Gods of Hindostan without seeing how strong an element runs through all of them of the Creator being represented by the particular organs which are essential to the formation of a new being upon earth.

It was so in ancient days in Western Asia. We scarcely need turn to the history of Ham and Noah, and other well-known narratives, to show that the real organ was held in profound esteem. By it Abraham made his steward swear, when he wished to bind his promise most effectually.⁵ Even amongst the Jews, those who had been seriously injured in any part of the essential organs of the male were not allowed to enter into the holy congregation.⁶

The evidence of pillar stones having had a phallic meaning, is inferential as regards some nations; amongst others it is all but demonstrated. In the scenes of love depicted at Pompeii, and their number is considerable, we find, in almost all, that the pillar is introduced as a witness, or because that which is being done is appropriate to the Hermes.

In one remarkable scene, a priest pours a libation on a slab, in front of a pillar which is adorned by oak boughs,

⁵ "Another primitive custom which obtained in the patriarchal age was, that the one who took the oath put his hand under the thigh of the adjurer (Gen. xxiv. 2; xlvii. 29). This practice evidently arose from the fact that *the genital member*, which is meant by the euphemic expression *thigh* (ἰν), was regarded as the most sacred part of the body, being the symbol of union in the tenderest relation of matrimonial life, and the seat whence all issue proceeds, and the perpetuity so much coveted by the ancients. Hence this creative organ became the symbol of the Creator and the object of worship among all nations of antiquity; and it is for this reason that God claimed it as the sign of the covenant between himself and his chosen people in the rite of circumcision. Nothing, therefore, could render the oath more solemn in those days than touching the symbol of creation, the sign of the covenant, and the source of that issue who may at any future period avenge the breaking of a compact made with their progenitor." C. D. Ginsburg, in *Kitto's Cyclopædia of Biblical Literature*, s. v. OATH.

⁶ Deut. xxiii. 1.

and surmounted by a leaf of the Quince. This leaf was emblematic. The fruit of the tree was eaten, because it was believed to increase the virile power; and the oak leaves were equally symbolic, typifying that the pillar was strong as the oak, and as enduring under trials. I have already expressed my opinion in the Society, that the round towers of Ireland were built in imitation of high pillar stones, and were nothing more than phallic emblems, and I need not revert to the subject now. Some have doubted whether the idea of Christianity, and of reverence for any phallic emblem, could have existed side by side; but that they have so done, we have abundant evidence in Old France, up indeed until the close of the sixteenth century, and even later.

A difficulty which has been felt by some, is to reconcile the notion of a phallic emblem being used as a memorial stone. To me the difficulty was insuperable, until I read an account of the opening of a child's grave at Cumæ, near Baiæ. In it lay the ashes of the once endeared youth; around them were placed a doll's chair, table, and many another toy, all betokening a keen sense of love and memory. Yet the chief part of the excavation was occupied by a huge phallus of red clay. In the same part of the country, to this day, this emblem is held to be powerful in averting the evil eye; and if in Christian Naples an effigy of the "fascinum" is held to be powerful against demoniac influence, we readily believe that a tender Etruscan may have placed one in the tomb of a darling child, to scare away Typhon. Again, if we visit our own cemeteries, we find our tombs adorned with those emblems which are most revered amongst us—the cross, the solar wheel, and some other mortuary emblems copied from Pagan sources. Surely, if we erect a sacred symbol as a memory of the dead, the ancients may have done so too; and of the many signs which have descended to us, none seems to be so ancient, so persistent, and so hallowed,

as that which was used to represent on earth the Creative Power on high.

The strongest evidence we have of the phallic nature of certain stones is from India; and the following quotations are from the pen of Mr. Edward Sellon, author of *The Monolithic Temples of India*, &c., and which I find are abridged from writings in the *Journal of the Royal Asiatic Society*. "Benares, however, is the peculiar seat of this form of worship. The principal deity, Siva, is a Linga, and most of the chief objects of pilgrimage are similar blocks of stone. No less than forty-seven Lingas are visited, all of pre-eminent sanctity. In the opinion of those who compiled the *Puranas*, Phallus was first publicly worshipped by the name of Basewarra-Linga, on the banks of the Cumudoati, or Euphrates."

This author, like others, shows how strong was the similarity between the Egyptian and Grecian mysteries and those of India, not only in general matters but in detail. It is unnecessary to follow him farther, and I will close my quotations from him with the record of his idea of the effects of this style of worship upon those who practise it. "One of the most accomplished Oriental scholars of our time, to whom the public is indebted for a *Teluga* dictionary and a translation of the Bible into the same language, a resident for thirty years in India, has recorded his judgment that, on the questions of probity and morality, Europeans (notwithstanding their boasted Christianity and morality), as compared with the Hindüs, 'have not much to boast of.' The same author adds—what I do not remember to have met with in any other writer—"that the Linga of the Assyrians was typified by a cone, numerous specimens of which were found projecting from the walls of the palace at Nimroud, of which examples may also be seen in the British Museum."

With these pillars, of which we have already spoken,

whether they were shapely or unhewn, were associated stone circles, or stone heaps. The latter, usually called cairns, are found in great numbers in Britain and Brittany, are common throughout the shores of the Mediterranean, and may be traced from Britain to Central Asia, probably farther. In ancient times, they were abundant along every highway in Greece and Rome, and at last seem to have been adopted as mile-stones.

There is something curious in the idea of throwing stones so as to make a heap to commemorate a hero, and that the menhir should be more efficacious *with* the cairn, than when standing alone; and the strangeness of the custom leads us to surmise the probable idea which originated it. We shall have no difficulty in tracing this, if we investigate the subject as ancient Orientalists; but if we act as modern Englishmen, the reason will surely escape us. It is simply that a phallus with many stones must necessarily be stronger than one with two.

These cairns were sometimes of enormous dimensions, of which we have an example in Avebury, and in Silbury Hill; and they were places whence laws could be promulgated, or where judgment could be given, or counsel taken. The tourist sees such a hill in the Isle of Man, on which the Governor is seated when he ratifies certain laws, already agreed upon by the legislature of the Island, and from which he promulgates them. The Tynwald Hill is not the seat of the government, it is, in fact, little more than a locality; but it is resorted to on certain days by the inhabitants of all parts of the Island, and becomes for a time the centre of law, trade, and conviviality.

There is something, but we cannot tell how much, in common between the cairns of which we speak and the vast pyramids erected by the Egyptians, the Burmese, and the Mexicans. As human nature is much the same everywhere,

we can readily conceive that sacrifice on high places has been adopted partly because the victims were made to approach nearer than they had been before to heaven, and partly because a great multitude might better see the offering when presented on an elevation, than when it was sacrificed on the level.

There is something strangely congruous between the religious ceremonies of peoples wide as the poles asunder. The Israelite used a knife of flint by which he cut off a part of his person; the Mexican used the same sort of implement when he cut open his living victim, so that he might tear the heart from its tenement and present it to the Sun, although he, like the Hebrew, was familiar with a metal hard enough to cut stone. The Mexican ruthlessly sacrificed the choicest of his youths on a pyramid of enormous height; the Oriental prepared to do the same upon a natural mountain. Baal fires were lighted on the towering heights of ancient Hermon, and similar ones blaze still from time to time on the hills of Ireland and Scotland.

Leaving the cairns, we may say a few words about the Stone Circles, so common in our own Islands, and in Brittany.

Colonel Leslie more recently, and Godfrey Higgins anteriorly, have clearly shown that they were of the nature of temples or churches—spots in which the people could and did meet to go through religious ceremonies—to hear expositions of faith and practice, and to take counsel in solemn conclave. In these stone circles there was one fragment always removed to admit of the entrance of the party, although the space between each upright was ample enough to admit every individual going at once to his own peculiar stone; and there was either one or a pair of conspicuous stones, opposite to which the chief performers stood; whilst in front of these was a recumbent stone for sacrifice.

There is something curious in these circles, as linking the past and dark with the present and comparatively enlightened times.

At Stonehenge we see huge trilithons, with the transverse rock mortised to the two uprights, the tenon and hole evidently having been worked by stone celts, hammers, or axes, thus showing, apparently, the absence of any iron or bronze tool. In the circle at Gilgal we see the circular fane associated with the use of flint knives, although the context demonstrates that there were silver trumpets, which could scarcely be made without tools. There were carved stones also, which imply a knowledge of the lapidary's art; Babylonish garments, which tell of looms that could scarcely have been made without metal tools; an ark and staves, which imply a knowledge of carpentry, and a variety of other details, which demonstrate the advancement of the arts of civilised life; yet, for the cutting of flesh, flint is preferred to iron or steel. But if we think of what is going on around us, we can readily understand how one portion of the actions, habits, and customs of a nation may remain unchanged, whilst others appear to advance. In all countries that I know, every thing connected with religion is essentially stable, except, perhaps, doctrine; few can tolerate change, either in the form of worship, the rites used, or the nature of the house of meeting; and though time has to a certain extent made the cruciform a more common shape for our churches than any other, there are still a few circular fanes which tell of a probable descent from the ancient stone circles which formed the basilics of our remote forefathers. Cruciform temples also exist in India which are of very ancient date.

I purposely omit entering into the statement that in Scotland, 'going to the stones' is used as an equivalent for

going to church, as the subject is too important not to require a special dissertation.

As these circles were sacred, so they were adapted for burials; and the faithful were interred around them, just as our dead are usually deposited in the churchyard around the church. The barrows within sight of Stonehenge may have received as many bodies as the graveyard around the Church of the Innocents in Ancient Paris; and then, as now, the *enceinte* of the circle may have received only the remains of those men whom a nation loved to honour, just as our illustrious dead repose under the dome of St. Paul's, or beneath the roof of the Abbey at Westminster, whilst the less distinguished ones repose around the fane.

Some have argued upon the improbability of the relics of a rude age being, under any circumstances, compatible with the existence of advanced, or, as some would say, an enlightened civilisation; but the allegation is of little worth, for not a year elapses in which the newspaper reader in Britain does not find instances of a belief in witchcraft, and of an adoption of superstitious practices amongst ourselves, existing side by side with the electric telegraph, the railroad, the steam-boat, the church or chapel, the national school, and an earnest priesthood of all denominations; and some, to their shame be it spoken, who wear broadcloth, silk, satin, lawn, or velvet, believe in the balefulness of *thirteen*, the power of the evil eye, and the influence of charms and religious emblems. Whilst others, equally high in society, and equally educated with the most erudite amongst us, converse through "media" with the dead.

The Galgal, which is the modern as well as the ancient name for the stone circle, was a place for the administration of justice, as well as for religious rites. To such an one Samuel the Prophet went in circuit ever year; nor can we wonder at such an occurrence amongst ancient people,

where as a rule the priest had more power than the king. We have seen how Samuel dictated to Saul to undertake an enterprise, apparently quite irrespective of *policy*; and profane history has told us how certain Egyptian priests used to dictate suicide to the monarch, whenever they thought he had reigned long enough.⁷ Without dwelling upon the connexion of priestly, judicial, and kingly power, we may advert to the practice, still current amongst ourselves, of using the parish church as the place in which the election business of the parish is attended to. We have made no scruple until recently of using the sacred building during the week days for ecclesiastical voting, so as to discover the decision of a majority; nor did the worshippers in the stone circles have any greater compunctions. Of the general sanctity in which these circles were held, their persistence to the present day is evidence. To plunder the stones was as bad as the commission of sacrilege; and the peasant dreaded to remove them as much as a peer would avoid destroying the venerable minsters which have replaced their rude progenitors.

Let us now, leaving these general considerations, turn our eyes to India. There, "in the Dekkan," says Leslie,⁸ "Cyclopean monuments are to be seen, constructed in all the varied forms in which they are to be found in France and Britain. Monoliths, arranged in circles single and consecutive, in ovals and oblongs, in single and in several parallel lines, and occasionally numerous circles in one of larger dimensions, — all these varieties may there be found in connexion with dolmens, kistvaens, galgalls, barrows, and other primitive stone memorials, that exist in Britain and Armonica. The simple fane and the elaborate inelegant pagoda are often

⁷ Rawlinson's *Herodotus*, vol. ii., p. 36.

⁸ *Early Races of Scotland, and their Monuments*, 1866, 2 vols. 8vo. Edinburgh, Edmonston and Douglas.

very near each other. That the simple cyclopean fanes preceded the skilfully designed and elaborately executed Buddhist temples of the Dekkan, none can doubt. That the former would continue to be erected a thousand years after the rock cut temples were deserted, without being destroyed, could never have been imagined ; yet so it is." After describing some circles which had been renovated and used immediately before he examined them, Colonel Leslie writes, "The sacrifice used in these high places is generally a red cock, sometimes a white one. The blood of the sacrifice is offered to the spirit, but the votary wisely retains the flesh of the animal ; the savour of its blood being deemed a substantial enough repast for the unembodied being whose favour it is sought to propitiate, or whose wrath it is intended to appease. It is probable that the sacrifice of cocks and goats is but the representation of bloody sacrifices, in which at some former period nobler animals, and even human beings, were involved. Within the last twenty years, human sacrifices were offered by the Khonds of the Indian peninsula.

"The spot of red paint put over the whitewash on the inner side of each stone I believe to be typical, and to be occasionally used in place of the blood which, from motives of policy, humanity, or economy, some modern votaries are unwilling to shed." The cock was offered, I believe, on the stone in front of the two large ones. "In Ceylon, the person who proffered the sacrifice bit off the head of the cock, and thus ensured a thorough sprinkling from the blood of the offering. The other stones within the circle were used for divination. It was believed that, when lifted, these stones felt weighty or light according to the degree of merit achieved by the votary in his sacrifice." After a few remarks upon the irregular number of the stones in the circuit, Leslie quotes from *The Statistical Account of Scotland* the follow-

ing:—"On All-Saints even they set up bonfires in every village. When the fires are consumed, the ashes are carefully collected in the form of a circle. There is a stone put near the circumference for every person interested in the bonfire, and whatever stone is moved out of its place, or injured before next morning, is devoted or "fey," and is supposed not to live twelve months from that day." "These rites," says Dr. Jamieson, "can be viewed in no other light than as acts of Devil-worship." The Colonel continues:—"The ceremonies and sacrifices in most of these rude temples of the Dekkan were in honour of the God Vetal or Betal, who is called a Demon by the Brahmins. The reason for the dislike may be, that any individual may sacrifice to them without the interference of a Brahman."

I cannot follow Colonel Leslie farther upon this subject, nor go through all the steps by which he traces the existence of the ancient race from India to Europe, but will go on to a reference to the sculptured or inscribed stone, called the "Newton Stone," found in Aberdeenshire, and which presents two inscriptions, one in letters of unknown relationship, the other in Ogham characters. Various attempts have been made to translate it. Dr. Mill, says Leslie, thus reads it:—"To Eshmun, God of Health! by this monumental stone may the wandering exile of me, thy servant, go up in never-ceasing memorial, even the record of Han Thanet Zenaniah, magistrate, who is saturated with sorrow."—Phœnician. I pass by some fragmentary ones to come to Dr. Moore's translation. After giving a long account of the similarity of the letters which are found on the stone to many which are found in ancient caves in India, he concludes that the writing is ancient Arian, but that its signification is Phœnician, and he reads the inscription thus:—"In the tomb with the dead (is) Aittie, the light of the darkness of a perverted people, who shall be consecrated pure priest to

God. Like the vessel of prayer my glory covered me." The Oghams he gives thus:—"When Baal ruled Jutland and the Coast before thee, Iatti was smitten." We may fairly doubt the translations, but we *cannot* doubt that the author of the inscription was acquainted with *letters* belonging to two distinct alphabets, and was in possession of a *graving tool* sufficiently hard to enable him to cut them into the rock,—all of which tell of travel, literature, and art, which existed in Scotland before the time of the Picts, and are as interesting as some British monument in New Zealand may be when England, like Tyre, has lost her maritime supremacy—perhaps even the memory of her own greatness—and has been compelled to abandon her missionary-formed colonies to their original barbarism; to give up the intellectual to the brutal instinct; and to withdraw the preaching of that religion which strives in vain against human instincts, until it has had time to train them, through many generations, into the belief that it is better to trust in spiritual directors than in their own rude arm of flesh.

Whether he who erected, and caused to be carved, the stone of which we speak was one of the Indo-Germanic stock, some mariner in a Phœnician galley, or some Lascar resembling the shivering creatures which occasionally are seen in our streets, none can tell. But so long as the stone remains, it seems to afford evidence that our country was not wholly peopled by savages whom ancient traders avoided.

There is a great number of pillar stones in Scotland; many are sculptured after a rude fashion, and are almost precisely similar to those existent in India and Ceylon. Elephants are depicted upon some, the legs terminating in scrolls, just in the same fashion as they are depicted in the East. It is singular to see copies of elephants so far from their ordinary habitat; still more curious is it to find that the artist is as conventional in Scotland as in Hindostan. Amongst the

most numerous of the emblems sculptured are the crescent and the triangle, the serpent, the fish, the mirror, the comb, and the horse-shoe. This fact is particularly interesting to the student of ancient times. He recognises in the crescent and the triangle symbols of the maternal creator. The serpent has long been recognised as an emblem of desire or love, or by whatever other name the "heat" of animals is spoken of amongst men. The fish has been sacred to Venus, or the female deity, from time immemorial; it is still eaten amongst ourselves on Venus-day, Friday—à *propos* of which I may quote a curious passage from the learned Felix Lajard: "De nos jours en effet les Druzes de Liban dans leur vêpres secrètes, rendent un veritable culte aux parties sexelles de la femme, et le leur rendent chaque vendredi soir, c'est à dire le jour qui fut consacré à Vénus, le jour auquel de leur coté, les musulmans trouvent dans le code de Mahomet la double obligation d' aller à la Mosquee et d' accomplir le devoir conjugal." So far as I can learn, the fish, which appears so largely on the sculptured stone, has been revered in ancient times in consequence of its supposed influence in increasing virile power—it being supposed that the flesh of any creature which is conspicuous for fecundity, can impart to those who eat it a power similar to that possessed by the animal itself. The mirror, which is equally to be noticed with the fish, has long been recognised as one of the emblems of Venus. It was carried in state before the Goddess Isis in her processions. The comb was used as an euphemism for the female organ. Clement of Alexandria, saying, "the comb is an euphemism used when we want to describe in musical language the woman's part, *μόριον γυναικείου*." This meaning is confirmed by the authority of Suidas, Pollux, and other Greek etymologists. The comb is figured in ancient Egyptian sculptures.

It is curious, but very significant, to find upon these

Scottish stones an ornament resembling a horse-shoe. It is tolerably certain that horses, in the times when these cuttings were made, were not shod as they are now, even if they were known at all, and we infer that the significance of the emblem is mythic. It is remarkable that the figures of Isis are sometimes represented with an ornament of a somewhat similar shape to the crescent moon. The old ring money of Ireland and of Africa was of the same form, and there have been crescents dug up in England made of gold, which are supposed to have been worn by Arch-Druids on their heads, as Isis did on her own. It appears to me that the emblem is the crescent moon inverted so as to be retained on the head.

Now the crescent moon was an emblem of the female creator, Mylitta, Ishtar, Astarte, or Venus, and the goddess was known amongst the Babylonians and Phœnicians under her name *Gad*, the one *par excellence* who brought good luck. Venus the star is still looked upon as a patron of good fortune by the Arabs. The association between the female and good luck has prevailed to a considerable extent both in Europe and Asia. The Arabs of Northern Africa used to nail over the door of a house or tent the generative organ of a cow, mare, or female camel, as a talisman to avert the influence of the evil eye. Sometimes a rude figure was used as a symbol, and the form which it commonly assumed was that of a horse-shoe; whence the modern custom of using the old iron crescent from a horse's hoof as a guard against evil.

Putting all these considerations together, we conclude that the emblems which are found in such large numbers upon ancient stones in Scotland had a feminine significance; and being sculptured on a pillar—emblem of the male—the whole, pillar and ornaments, signified reverence for the mysterious androgyne from whom all things sprung.

I should like to call attention in passing to the custom of throwing an old slipper after a bride for luck. It seems to have arrived thus: a horse-shoe is emblem of good fortune, but would be too heavy a missile to throw at a bride, so another shoe is chosen. The bride is a virgin—*virgo*, she is about to become a woman—*mulier*; the French name for a slipper is *mule*, and thus the slipper was selected to wish the bride good fortune at the most critical period of the married life, *i. e.*, when from *virgo* she became *mulier*.

Amongst the other figures sculptured on ancient stones in Scotland there are two which are extremely common; one represents the modern letter Z, with or without ornamentation; the other represents two circles united together by lines. At first sight, the last look like a pair of primitive spectacles, or a pair of eyes united by a somewhat bushy line of hair across the nose. In speculating upon the value of these as signs, I recollected that there was in ancient Moab a place called Beth or Almon, *diblathaim*; the first of which signifies literally “the temple or shrine of the two circles.” A reference to ancient coins, amulets, and seals shows us that, as a general rule, the Sun, or the male creator, was represented as a star with four or more points, while the Moon, or female Creator, was represented as a crescent, and that Venus, the largest and most striking of all the planets in the eye of an Oriental, was figured as a globe of gold. But there is no doubt that the male divinity was often represented with an aureole round his head, or even a yellow or golden disc, which was understood to indicate the solar majesty. We also know that, amongst the Egyptians, the eye in various forms was used as an amulet or charm. There is then offered to the philosopher, abundance of choice as to which idea he will select for the one which dictated to the sculptor the form of ornament in question. One of the circles is sufficiently notched to lead

us to the belief that it at least was intended to represent the moon. Assuming this for a starting point, we may imagine the other to be the sun, especially as in many of the specimens the one is made much larger than the other. If so, the form of the Z would represent the ζῶνγ, or yoke—emblem of union; and thus the two circles would simply be a reduplication of the idea embodied in the crescent and the triangle, and which we may shortly describe as one to which most reasonable beings still adhere, viz., that marriage is better than celibacy. The ancients enveloped the most common facts in mystery, and no wonder, for folks have ever felt that a human being, clothed with gold, precious stones, and rich stuffs, must be more powerful than a naked savage, and that truth will assume a great or small proportion, according to the ornaments with which it is surrounded.

The evidence of stones seems to show that from Central India to the British Isles there was a race as distinct and as widely spread as is the Russian of to-day.

Here I intended to complete my Essay, and for that purpose laid down my pen, but I have been so much interested with a paper, which only came into my hands six days ago, that I must add a few words respecting it. Colonel Meadows Taylor has explored many tumuli and cromlechs in India, and has so completely demonstrated their close resemblance with those in Russia, Brittany, and Britain, that he must be prejudiced indeed who does not believe that all were erected by a people possessing the same faith and custom. He goes still further, and by comparing the mode of sepulture, described by Herodotus as practised amongst the Scythians, gives us reason to believe that the British Isles contained a people of the same race. In this we quite agree. The conclusion we draw from our own researches up to the present time is to the following effect—that two great nations have been in contact in the Southern parts of

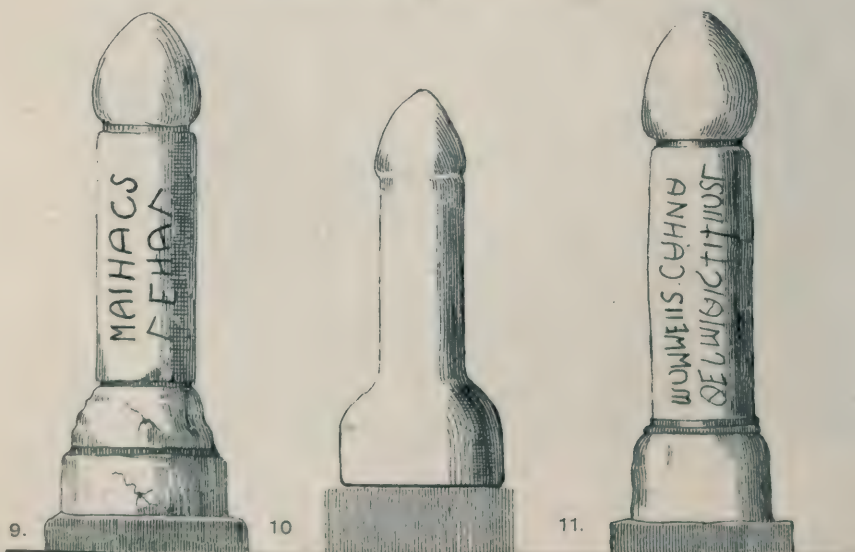
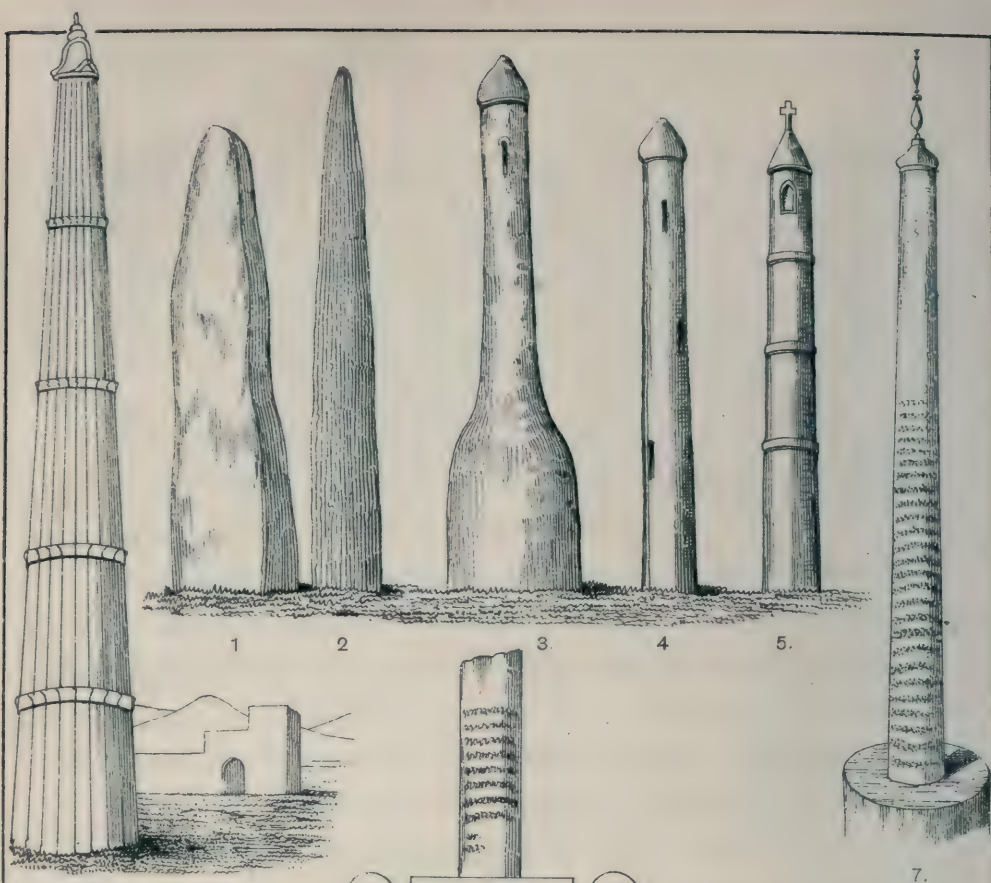
Western Asia and in Europe—one to which the names of Arian, Scythic, and Indo-Germanic have been given, was nomadic, and migrated by land; the other, to which the generic term Shemitic has been assigned, were traders, a maritime people like ourselves, who migrated almost exclusively by sea.

This is the deduction which I attempted to draw in my paper on Proper Names, and it is one which is wonderfully strengthened by our reading of “Stones.”

It is easy to affirm that words in Scotland, identical, or nearly so, with words in Hindostan, are accidental coincidences, and that Honeyball in Cornwall can have nothing in common with Hannibal of Carthage; but it is very difficult to assert, and still more so to demonstrate, that the resemblance between pillars, cairns, gilgals, cromlechs, kistvaens, and mounds, in the remote East and the near West, are the result of chance. “Chance” has much to answer for, but it is the duty of the philosopher to prevent her riding rough-shod over the domain of science and literature.

DESCRIPTION OF THE FIGURES.

Nos. 1 and 2, are copied from Forbes Leslie’s book entitled *The Early Races of Scotland*; they represent two different “menhirs,” or tall erect stones, which exist on the coast of Brittany; both are of considerable height, the one being seventy, and the other about sixty feet in height. Similar stones exist in England, one of the largest being situated at Rudstone, in the East Riding of Yorkshire, whose whole length is estimated at forty-eight feet, and whose weight is supposed to equal forty tons. At Drogheda, in Ireland, there is another similar menhir, of considerable height, which goes by the name of “The Lady’s Finger;” this has been supplemented by a round tower. These stones only differ from the Bethel stone in size; they could only have been erected by numbers; the Bethel stone was placed upright by one man, and must therefore



necessarily have been comparatively small. A stone similarly erected was by the Greeks called a 'hermes,' and it was very commonly surrounded by a multitude of small stones, sometimes sufficient to form a considerable heap, one of which is figured at 41.

Nos. 3, 4, and 5, are representations of three of the ancient round towers in Ireland; their shape is singularly suggestive of the idea which they were built to convey. One of them is in Wicklow, and at its feet are certain ruined buildings, called 'the seven churches.' The local guide informed me that at a particular time of the year,—corresponding, if I remember rightly, to the first of May,—there used to be a grand meeting around the tower, which was specially marked by rites for the cure of sterility and orgies too gross to mention. These meetings were abrogated, I think he told me, about thirty years ago. Compare Fig. 3 with Fig. 10.

Figs. 6, 7, and 8, are all Indian, and some centuries old. They are introduced to show the development of the menhir into the pillar and the minaret. In Figure 8, the union of the two domes with the column is apparently accidental.

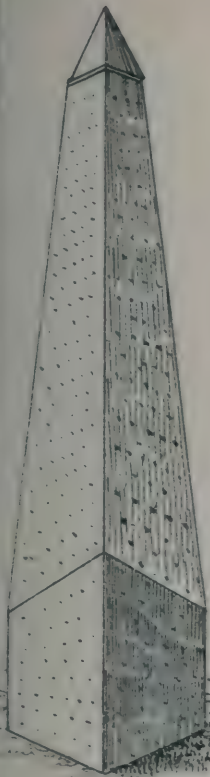
Figs. 9, 10 and 11, are copies of posts which were found in the streets at Pompeii; two of them have inscriptions, which are considered by M. Roux Aîné (*Herculanum et Pompéi*, Paris, 1840), vol. 5, p. 206, to be written in the Oscan characters, and in a debased form of the Latin language. The longer one he reads as "Lucius Mommeius Eæna, has erected baths." The shorter one he reads as "Mainax Lenæ," and considers that the last word is "leno," the whole signifying that 'Mainax keeps a brothel.'

Fig. 12, shows the development of the menhir into the obelisc. In this the emblem becomes no longer simple, but is associated with the number four. This mystic number is rendered in the Shemitic languages by the word *Arba*, who is described as a great man amongst the Anakims, Josh. xiv. 15. Amongst the Assyrians, the Gods were described as triads, and with each trinity there was a female Goddess, who was always depicted as a virgin. These four were the originators or creators of all things. The Egyptians had a similar myth, Osiris being triple, and Isis singular. Physiologists will readily recognise the meaning of the myth, from his knowledge of those parts which are essential to the formation of a new being.

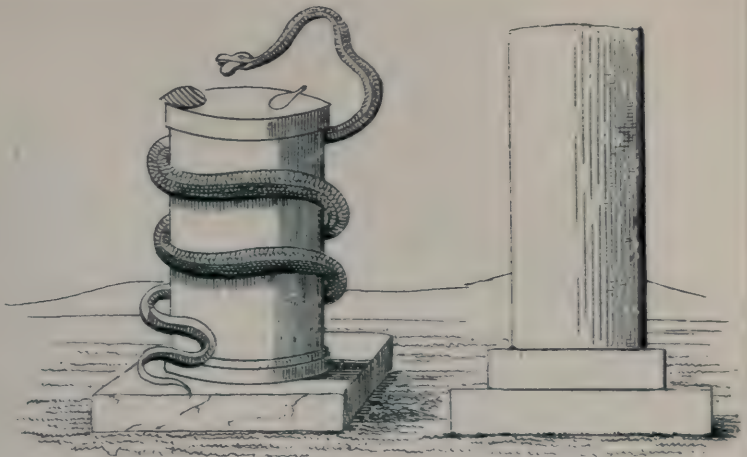
Fig. 13, is a copy of a fresco from Pompeii. It represents a pillar altar, on which are two egg-shaped bodies, and round which a serpent is entwined. In the mouth of the latter is seen another similar body, which he is squeezing in his mouth. It is unneces-

sary to inquire closely into the mystery involved, if indeed there be any intended.

- Fig. 14, represents a simple pillar; its signification we infer, from its being introduced into so many of the paintings of amorous design in Pompeii.
- Fig. 15, copied from an ancient coin, figured in Lajard, *Sur le Culte de Venus*, represents the celebrated conical stone, under which form that Goddess was worshipped at Paphos. Above the shrine the sun and moon are in conjunction.
- Fig. 16, is copied from one of the hermes found in Pompeii. In the print from which these are taken (Roux Ainé's *Herculanum et Pompeii*), there are two other hermes depicted, one of which is a Mercury, with cap, crook, and drinking-cup, and a solid four-sided pillar for legs; the other represents Priapus, with horns, a crook, and a cloak; the whole body being depicted as standing upon a square pedestal: both these have the usual emblem of the god. One of the hermaic figures bears the skin of Hercules.
- Fig. 17, from the same source as the preceding, is a mixture of Hermes and Priapus. The number of figures similar to those described which have been found in Pompeii is immense, and most of them were marked by some sort of an inscription.
- Fig. 18, is an Assyrian emblem of the sun, represented as a chariot wheel, the terminations of whose spokes are triple.
- Fig. 19, is copied from Lajard, and represents the impression of a Babylonian seal. It delineates the Androgyne deity, and helps us to explain such symbols as the sun and moon, the amphora and cup, the lozenge and the six-headed star; and we think that we can also see the signification of the mythic dragon.
- Fig. 20, is a Hindoo symbol, representing two trinities equal to each other, and infolding; it is used in worship by Buddhists, some relic or figure being placed in the central circle.
- Fig. 21, represents Isis, having upon her head a figure representing the crescent moon inverted.
- Fig. 22, is an attempt to represent the vestibule of the temple of the Syrian goddess, in which were two enormous phalli.
- Figs. 23 and 24, are copies of two of the pillar stones of Scotland, figured by Colonel Forbes Leslie.
- Figs. 25, 26, and 27, are rude representations of elephants, copied from some of the pillar stones of Scotland. In 25 and 26 the legs terminate in scrolls, similar, as the author above-mentioned says, to those found on similar stones in Ceylon.
- Figs. 28, 29, and 30, are from the same Author's book; they represent the horse-shoe ornament, the representative of the crescent moon of Isis, or "*la nature de la femme*."



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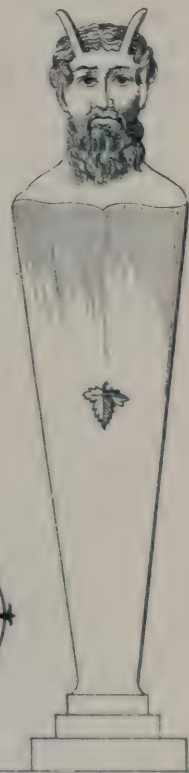


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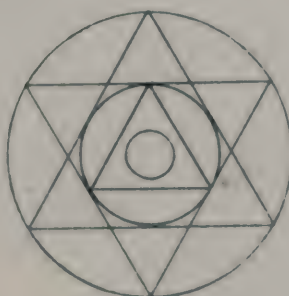
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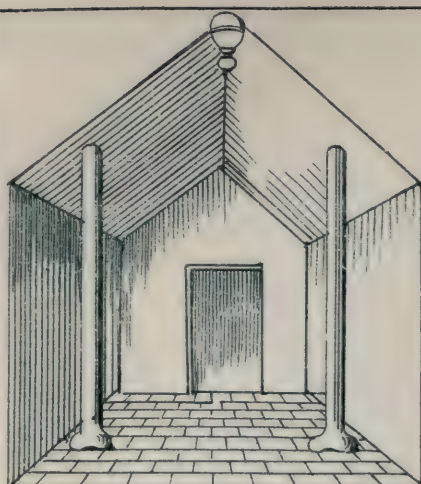
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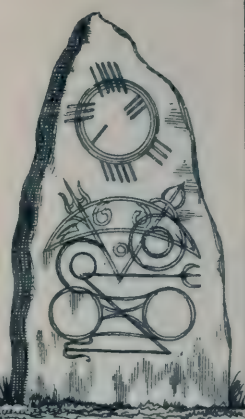
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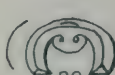
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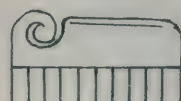
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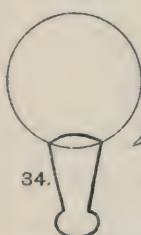
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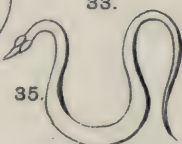
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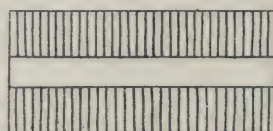
33.



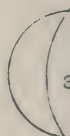
37.



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36.



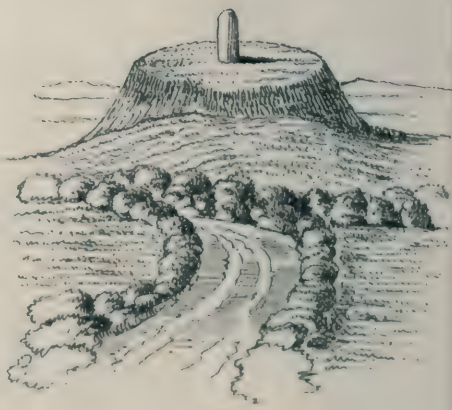
38.



39.



40.



41



42.



43



44



45

Fig. 31, is a copy of the Newton stone, from Dr. Moore's *Pillar Stones of Scotland*, and the inscription which it bears is given at length to the right hand side of it.

Figs. 32 and 36, represent combs; they are copied, as are the others to Fig. 39, from Forbes Leslie's *Early Races of Scotland*. The existence of this useful article in Scotland certainly tells us of some civilisation. As an emblem, the comb represents Venus, and a part which is often used as an emblem of the passive element in creation.

Fig. 33, apparently depicts a solar triad.

Figs. 34 and 39, are intended for mirrors, which, like combs, were emblems of the female creator.

Fig. 35, is apparently intended to represent the cobra, one of the few serpents which is able to distend and erect itself.

Fig. 37, a fish, is a well known emblem of Venus—fertility, or parental vigour.

Fig. 38, is the crescent moon, an emblem of Isis, Ishtar, Venus, and woman generally.

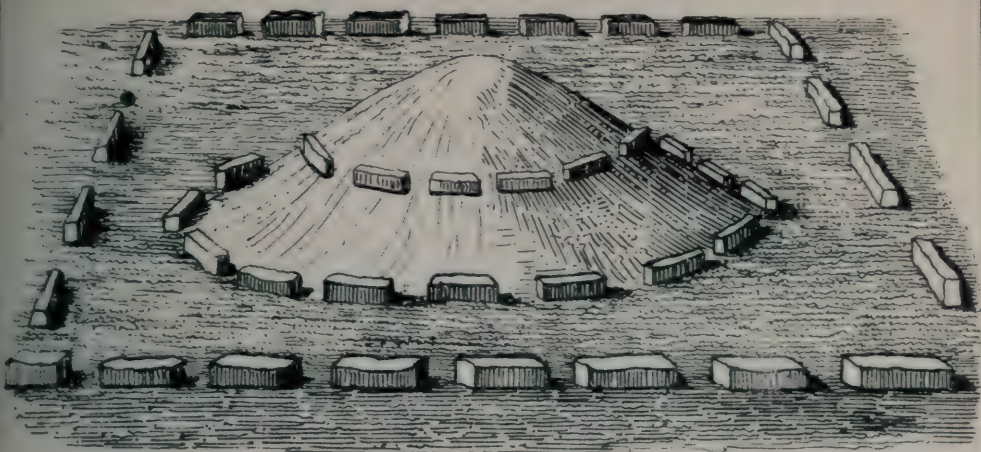
Fig. 40, is copied from a remarkably interesting paper by Colonel Meadows Taylor, in the *Transactions of the Royal Irish Academy*. It is a drawing of a cairn, which he caused to be opened in the Dekkan, five miles south-east of Jewurgi. The tomb was in the vicinity of remains whose nature is thought, when they occur in England, to indicate Druidism. The author considers that the style of burial resembles the Scythian method, and quotes Herodotus, b. 4, c. 71.

Fig. 41, is copied from Forbes Leslie's book, and shows a hermes and galgal, gilgal, or cairn of unusual magnitude in Brittany. Of similar shape are the "linga-yonis" of the Hindoo villages, though their size is small, and the material of them is stone.

Figs. 42 and 43, are from Meadows Taylor, and indicate what we may call Druid monuments in India.

Figs. 44 and 45, are from Forbes Leslie's book, and represent stone circles, erected in the Dekkan, not very far from the remains commemorated by Meadows Taylor. These circles, though they resemble ancient Druid ones, are of modern origin; and the name of the god in whose honour they are erected is Betal or Vital. The spots upon each stone are of red paint, which is supposed to represent human blood. It is amusing to see how nations like the Chinese and the Hindoos fancy they can "economise" in their worship, by counterfeiting money and blood; but the spirit of "make-believe" is so strong in us all, that it is injudicious to indulge in laughter at others.

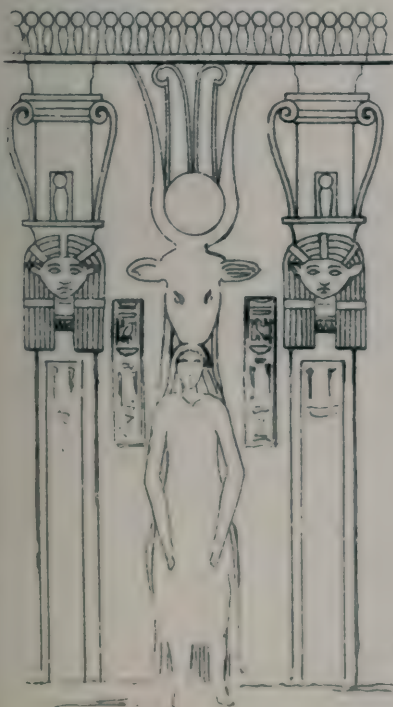
- Figs. 46, is copied from R. P. Knight. "The place of worship consists of an area and altar only," inclosures like those of the Persians, with an altar in the centre. "Such a temple is to be seen at Puteoli," which resembles a Celtic temple in Zealand—*i. e.* Fig. 46.
- Fig. 47, is copied from a frescoe in Pompeii. It is curious, as it represents an offering made to the 'god of the gardens,' the small central figure. On the right is to be seen a hermes of a common form, and on the left a triple hermes, in the form of a cross, which justifies the statement that this emblem is not exclusively a Christian one.
- Fig. 48, represents Isis with a cow's head, taking the very unusual form of a pillar.
- Fig. 49, represents an altar and a pillar hermes or 'terminus.' The leaf at the top represents that of the quince tree, and it is generally placed by the Pompeian painters in the hands of young brides, or females in Bacchanal scenes, as the fruit of that tree was provocative of desire. Compare Song of Solomon ii. 5. Two branches of oak, emblematic of strength and endurance, are fastened round the pillar; and the priest, in the costume of those consecrated to Bacchus, and having a thyrsus in his hand, pours a libation of wine upon the altar, as a sort of drink offering, resembling that made by Jacob to a pillar, Gen. xxxv. 14.
- Fig. 50, is copied from a coin of the elder Philip, struck at Heliopolis, in Coele Syria, which is figured by Lajard; in the centre is represented Ceres and Cornucopia, which sometimes replaced the Virgin and Child, the equivalent of Mylitta, Astarte, or Venus. Two attendant genii, each of whom is standing upon an erect pillar stone,—whose shape denotes its signification,—are doing honour to her. It is to be remembered that when money was first coined, it was marked by sacred emblems, thus affording us an insight into what was the nature of the mysteries, and of the forms under which the Deity was supposed to be recognised. The figure of the Virgin and Child can be traced back to the most remote times of Babylonia and Phœnicia, and was as much respected in ancient Tyre as it is in modern Rome.



46.



47.



48.



50.



49.

SIXTH ORDINARY MEETING.

ROYAL INSTITUTION, January 7th, 1867.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

Previous to this meeting, according to notice, an

EXTRAORDINARY MEETING

was held, to consider a recommendation from the Council, that a Class of Corresponding Members should be instituted.

After considerable discussion, it was resolved that the subject should be referred back to the Council for further consideration.

At the ORDINARY MEETING which followed, Mr. Caleb Smith, Jun., Mr. Donald M. Drysdale, and Mr. Robert Trimble, were balloted for, and duly elected members of the Society.

The following paper was then read :—

AN INQUIRY

INTO THE ORIGIN AND PHILOLOGICAL RELATIONS OF
THE ANTIQUE DIALECT FORMERLY SPOKEN IN THE BARONIES
OF FORTH AND BARGEY, COUNTY WEXFORD, IRELAND.

By J. A. PICTON, F.S.A.

THE history of Dialects forms a very important part of Philological inquiry. The literary standard of every language has usually been subjected to so many influences of an external nature, has drawn so much from foreign sources, for the purpose of giving utterance to new thoughts and providing a constantly increasing vocabulary, that the racy homeliness of the earlier phraseology has been almost entirely extinguished. What is gained in breadth is sometimes lost in power. The earlier forms of speech are clipped and softened and compromised, and though, on the whole, the result is a wonderful gain to the cause of progress and development, difficulties are thrown in the way of etymological inquiries which the study of primitive dialects helps to remove. Most of the dialects of our English speech (*Englisca spræce*) have been amply illustrated, but here and there, in outlying nooks and corners, there may still remain, comparatively undisturbed, archaic forms and a primitive vocabulary, in which there has been little alteration for many ages, serving to illustrate the progress of our language, and bringing us as it were into contact with mediæval times. Such appears to be the case with the dialect now to be considered. It can hardly be said still to exist in actual speech. Within the last generation it has died away, and only survives as a spoken tongue in the memory of a few old people, who have heard it in their childhood. The remains, therefore, are necessarily scanty; but, from the researches I have been able to make, they

appear to me to be fraught with remarkable interest. The existence of a peculiar race of people, limited to the corner of a single county, preserving for ages intact their own manners and customs, speaking a dialect entirely different from that of any other part of the country, is a phenomenon sufficiently striking to merit inquiry, both in its ethnological and philological relations. As is often found to be the case when facts of an abnormal nature come under casual observation, the peculiarities have been sometimes exaggerated.

It has been stated by one observer that the dialect spoken was "pure Anglo-Saxon;" by another, that it precisely corresponded with the language of Gower and Chaucer. A third writer states that the inhabitants are pure Normans, and maintain the manners, customs, and language of their ancestors to the present day. Although neither of these statements will be found exactly correct, yet enough remains to render the analysis of the dialect and the inquiry into its history one of very great interest.

Very little has hitherto been published in illustration of this peculiar speech. The first notice is in a report of Col. Solomon Richards, of Wexford, prepared, it is said, for the information of Sir William Petty, about the year 1632. He says on this subject —

"Bargie and Forthe are the English baronies, but Forthe chiefly retains the name, and justlie. Its idiom of speech is not Irish, nor same as English, as English is now refined; yett it is more easy to be understood by an Englishman that never heard Irish spoken than by any Irishman that lives remote. Itt's notorious itt's the very language brought over by Fitzstephen, and retained by them to this day. Whoever hath read old Chaucer, and is at all acquainted therewith, will better understand the Barony of Forth dialect than either an English or Irishman that never read him, though otherwise a good linguist. Itt was an observation of the inhabitants of this Barony of Forth. before the last rebellion, that they had kept their language, loyalty, and religion all equally pure."

General Vallancey, who, during the latter part of the last

century, was a most industrious writer on Irish antiquities, contributed a paper in the second volume of the *Transactions of the Royal Irish Academy*, 1788, giving an account of these baronies, in which he gives an old song* on a hurling match, with a vocabulary.

In the year 1836, on the occasion of a visit of the Earl of Mulgrave, the Viceroy, to Wexford, an address* in the native dialect was got up and presented to him. By this time the dialect had become so obsolete and disused, that considerable difficulty was experienced in preparing the document.

Dr. Latham, in his *English Language*,† gives a short notice of the dialect, and inserts the "Address."

In 1857, at the meeting of the British Association in Dublin, the Very Rev. Dr. Russell, president of Maynooth College, read a paper on this subject. It is not published in the *Transactions*, but by the kindness of Mr. E. Hore, of Wexford, I have been able to procure a copy. It is decidedly the most interesting document which has hitherto been published on the subject. There are also slight notices in the *Encyclopædia Britannica*, article "Wexford," and in Jennings' *Somersetshire Dialect*.‡

These are all the notices I have been able to find. In none of them, except in Dr. Russell's paper, is there any attempt at analysis or philological inquiry. I have thought it desirable that such an attempt should be made before the dialect is entirely forgotten. With what success I have pursued the inquiry my readers must judge.

A glance at the position of the tract of country under consideration, and a few notices of its history, will explain the influences to which it has been subject. We shall then be in a better condition to analyse the remains of the dialect, and to trace them to their respective sources.

* Both these are given below. † Vol. ii., p. 426, 4th ed.

‡ London, 1825; p. 20.

The county of Wexford occupies the South East corner of Ireland, and the baronies of Forth and Bargey occupy, in like manner, the South-eastern angle of the county. Washed by the sea on the east and south, cut off on the north by Wexford harbour, and nearly separated on the west by small rivers between the river Slaney and Bannow harbour, these two baronies form a district apart, shut out to a great extent from regular intercourse with the other parts of the country. At the same time, its maritime position at the entrance of St. George's Channel, within easy distance from South Wales and the West of England, afforded peculiar facilities for settlers arriving by sea. That these circumstances have been taken advantage of, the history of the country will show.

The original population was doubtless of the Celtic Irish race, as the substratum of the nomenclature shews in such names as Ballytrant, Kilsoran, Killine, Durcomuck, &c. From a very early period the district was subject to the incursions of the Danes, or Northmen, who, after repeatedly plundering the country, finally settled down and took peaceful possession. A large portion of the nomenclature belongs to this period. Wexford—Weis-forth, or fiord, the bright harbour, Bargey, Forth, Scarcross, Tuskar, the Saltees islands, the river Slaney, &c., are names given by the Danes. Next succeeded the Anglo-Normans, who, in 1169, landed under Strongbow and his companions, and took possession. The two baronies were then created; Forth was bestowed upon Robert Fitzstephen, and Bargey upon Hugh de Montmorency. Many changes subsequently took place, into which it is not necessary to enter. The dialect itself presents sufficient internal evidence that the population was largely recruited from Devonshire and the Western coasts of England.

After the cessation of predatory maritime attacks, the country appears to have settled into a quiet agricultural condition. Possessed of a fertile soil, and open maritime communication, and separated from the Celtic population by a barren mountainous district, and by a difference of language and habits, the manners, customs, and dialect of the people naturally followed an unbroken tradition from generation to generation, and in the last century must have presented a quaint and interesting specimen of the olden times. Vallancey (writing in 1788) says—

“When we were first acquainted with the colony, a few of both sexes wore the ancient dress; that of the man was a short coat, waistcoat, and trunk breeches, with a round hat and narrow rim; that of the woman was a short jacket, a petticoat bordered at bottom with one, two, or three rows of ribband or tape of a different colour. We have seen one whose jacket was of superfine woollen cloth, of a dark brown colour, edged with a narrow silver lace. The dress of the head was a kircher (kerchief).”

The prevailing family names of the colonists are stated to be Hore, Cod, Stafford, Whitty, Rossiter, Sinnot, Murphy, Stephen, Quiney. These appear to be as various in their derivations as the inhabitants themselves. Cod, Murphy, and Quiney are native Irish in their origin; Sinnot and Stephen are Norman. Whitty and Rossiter are probably of Danish derivation. The latter has been supposed to be a corruption of Wroxeter, an ancient Roman city in Shropshire, but is more probably from the Norse Röst, Röster, intrepid, bold. Stafford is undoubtedly English, and Hore most probably so.

At the time when Vallancey published his account, the dialect had already become to a great extent obsolete. He says—

“As population increased, some of the English” (*i.e.*, the inhabitants of the baronies) “have been obliged to remove into the neighbouring baronies within these fifty years, and, by an intercourse with the Irish,

the language of these emigrants became corrupted: and these, by their connections with their kindred remaining in the baronies of Bargie and Forth, have in some measure introduced this corrupted dialect there. The town of Wexford is the market to which the colony resorted, to dispose of the produce of their farms, and in this market all things are bought and sold in the modern English dialect; this also is another cause of the decline of the language of the colonists, but not one word of Irish is understood or spoken in these two baronies;* still they preserve many words and phrases of their original language, and some original songs, which, having been committed to writing, will exist as long as the people."

I now proceed to give the specimens of the dialect already alluded to. The first is a rude ditty on the vicissitudes of a hurling match. A few words on the subject-matter of the song may not be out of place.

The game of Hurling is of very high antiquity, something very like it having existed amongst the Greeks and Romans, under the name of "Harpastum," which is mentioned by Martial and by Galen.†

In this country it has principally flourished in Cornwall and the West of England. Carew, writing in 1602,‡ thus discourses of it:—

"Hurling taketh his denomination from throwing of the ball, and is of two sorts: in the east parts of Cornwall to goales, and in the west to the country. For hurling to goales there are fifteen, twenty, or thirty players, more or less, chosen out on each side, who strip themselves to their slightest apparell, and then join hands in ranke, one against another. Out of these rankes they match themselves by payres, one embracing another, and so passe away, every of which couple are especially to watch one another during the play. After this they pitch two bushes in the ground, some eight or ten feet asunder, and directly against them, ten or twelve score paces off, other twain in like distance, which they term goales, where some indifferent person throweth up a ball, the which whosoever can catch, and carry through his adversaries' goale, hath wonne the game."

* This must be accepted with some limitations, as we shall find many words in the dialect derived from the Irish.

† See also Becker's *Gallus*, i. p. 276. ‡ *Survey of Cornwall*, book i., p. 73.

The hurling "to the country" was played somewhat differently, over a large extent of country, by one parish against another.

Strutt,* who quotes the above account from Carew, adds—

"About five and twenty years ago [this would be about 1780] the hurling to the goal was frequently played by parties of Irishmen, in the fields at the back of the British Museum, but they used a kind of bat to take up the ball and to strike it from them; this instrument was flat on both sides, and broad and curving at the lower end. I have been greatly amused to see with what facility those who were skilful in the pastime would catch up the ball upon the bat, and often run with it for a considerable time, tossing it occasionally from the bat and recovering it again, till such time as they found a proper opportunity of driving it back amongst their companions, who generally followed, and were ready to receive it. In other respects I do not recollect that the game differed materially from the description above given."

With this explanation, the incidents in the song will not be found very difficult to understand.

The text, as given by Vallancey, is evidently in many parts corrupted. I present it with an interlinear translation into modern English. This differs in many respects from that given by Vallancey. I wish it to be literal, or verbal, and not a mere paraphrase.

A YOLA SONG.

AN OLD SONG.

Scene.—The Commons in the Barony.

Time.—A Church Holiday.

Walter relates to John how his son Tommy, having the fairest chance of winning the game at Hurly or Commáne, lost it by too great eagerness, and broke his bat against an ant hill.

I.

"Fade teil thee, zo lournagh? co Jone zo knaggee?

What ails thee, so lowering? quoth John, so peevish (knaggy)?

* *Sports and Pastimes*, edit. 1810, p. 91.

Th' weithest all curcagh, wafur, and cornee ;
 Thou seemest all wearied, woeful, and fretful ;
 Lidge w' ous an 'a milagh, 't is gay and louthee ;
 Lie with us on the clover, 't is gay and sheltered
 Huck nigher, y' art scudden,* fartoo so hachee.
 Draw }
 Hitch } nigher, you 're writhing, whereto so ill-tempered.

II.

Well, gosp, ch 'ull be zeid, mot thee fartoo an fade,
 Well, gossip, it shall be said, told thee whereto and what,
 Ha deight ouz var gabble, tell ee zin go t' glade ;
 (You) 've prepared us for chat, till the sun goes to (the) valley ;
 Ch 'am a stouk an a donel, wou 'll leigh out ee day ;
 I am a stock and a fool, we 'll lie out the day ;
 Th' valler w' speen here, th' lass i' chourch hey.†
 The more we spend here, the less in the church yard.
 (value)

III.

Yerstey w' had a barree ‡ jist ing our hone,
 Yesterday we 'd a goal just in our hand,
 Are gentriz were bibbern, amezill con no stone.
 Their gentry were quaking, themselves could not stand.
 Yith muzlere had ba hole ; 't was me Tommeen
 If mislere had (the) bat held ; 't was my Tommy
 At by miz-luck was y-pit t' drive in.
 That by mis-luck was put to drive in.

* On this word, Mr. Edmund Hore, of Wexford, to whom I am indebted for much valuable information, remarks, "This is still a very common phrase in low life. It means the act of a person shrugging his shoulders and twisting his body, as if som' thing was itching or irritating his skin, and conveys the idea of discontent within his mind, at something done or to be done."

† The meaning of this is, I suppose, that the church yard, on Sundays and holidays being the great mart for gossip, the time in telling the story now would be so much saved at the Sunday meeting.

‡ This means the goal. It was formed of a stout tough stick, bent into a semi-hoop, with pointed ends driven into the ground, about three feet wide and thirty inches high. There were two of these, one for each party, at opposite ends of the playground, the distance about 100 yards more or less. The party putting the ball through the baree of the adversary won the game.—HORE.

IV.

Joud and moud vrem earchee ete was i' lough;
 Throngs and crowds from each quarter were at (the) lake;
 Zitch vaperren and shimmereen fan ee daff i thar scoth;
 Such vapouring and shimmering when they doffed in their shirts;
 Zitch blackeen and blayeen fan ee ball was y-drowe,
 Such bawling and shouting when the ball was thrown,
 'Chote well ar aim was t' yie ouz ne'er a blow.
 I know well their aim was to give us ne'er a stroke.

V.

Mot w' all ar boust hi soon was y-teight,
 But with all their boast they soon were taught,
 At ar errone was var ameing 'ar 'ngish i' height;
 That their errand was for aiming their anguish (to) its height;
 Zitch vezzen, tarvezzen; till then w' ne'er zey,
 Such thrusting, struggling, till then we ne'er saw,
 Nor zichel ne'er well now nor ne'er may.
 Nor such-like ne'er will now nor ne'er may.

VI.

Many a braw draught by Tommeen was y-mate;
 Many a brave stroke by Tommy was made;
 Th' Cowlee* man fausteen, zey, well, 't was a nate.
 The Cowlee man spattered, says, well 't was a neat (one).
 Yith w' had any luck our name would b' zung,
 If we had any luck our name would be sung,
 Vreem ee Choure here alogh up to Cargun.
 From the Choure† here below up to Cargun. ‡

* *Cowlee*. When the ball was driven beyond on either side or over the *Baree*, it was called a *Cowlee*. The parties then changed positions, and the one that gained the *Cowlee* had the privilege of throwing up the ball, making a powerful stroke, and driving it as far as possible towards the opposite goal, where the struggle to pass through again began.—HORE.

† Choure = sore. Carnsore Point.

‡ Cargun, one of the hills between Wexford and Carlow.

VII.

Th' heiftem o' play vell all ing to lug,
 The weight of (the) play fell all into (the) hollow,
 An there w' had Trebler* and sturdy Cournug.*
 And there we had Trebler and sturdy Cournug.
 Th' commanes t' rapple, the ball skirr an vlee;
 The ball-clubs they rattled, the ball skirred and flew;
 Our een would b' mistern t' dearn 't up i' skee.
 Our eye would be dimmed to turn it up to the sky.

VIII.

Than came ee shullereen, i' t' heap an corkite
 Then came the shouldering, in the heap and struggle
 Hi kinket an kilt i vewe ame t' wode snite.
 They kicked and kilt † the few of them that would hurry up.
 Zim dellen harnoths w' are neze i' reed clay,
 Some delve earth-nuts with their nose in red clay,
 More trolen, and yalpen, and moulten away.
 More rolling, and yelping, and melting away.

IX.

Na, now or nevir, w' cry 't t' Tommeen,
 Nay, now or never, we cried to Tommy,
 Fan Cournug yate a rishp, and Trebler pit w' eem.
 When Cournug gave a rush, and Trebler put with him.
 A clugercheen gother, all ing pile and in heap,
 A crowd gathered, all in (a) pile and in (a) heap,
 Wourlocked anan orree lick lluskes o' sheep.
 Overlocked one on another like droves of sheep.

X.

T' brek ‡ up ee bathes h' had na poustee,
 To hinder the bats they had no power,

* Two well known players. † *Kilt*, more Hibernico, in an Irish sense.

‡ *Break* is not here used in the sense of "frangere." but with a meaning common in A.-S.—"to vanquish, weaken, overcome." Tommy's antagonists were all lying in a confused heap before him, and he was master of the situation, had he known how to use it.

Tommeen was lous, and so was ee barree;
 Tommy was free, and so was the goal;
 Our heart cam' t' our mouth, an zo w' all i' green,
 Our heart came to our mouth, and so with all in (the) green,
 Th' hap an ee ferde, and ee crie was "Tommeen!"
 They hoped and they feared, and the cry was "Tommy!"

XI.

Up came ee ball, an a dap or a kewe
 Up came the ball, and a tap or a shake
 Would zar; mot all arkagh var ee barnagh blow.
 Would serve; but all eager for the barnagh blow.
 We' vengem too hard, ee zunk ee commáne,
 (at the bars)
 With earnestness too hard, he sunk the bat,
 An brough et i' still ing a emothee knaghane.
 And broke it in (the) steil in an emmets' hill.
 (handle)

XII.

Th' ball want a Cowlee,* the gazb mate all rize
 The ball went a Cowlee, the dust made all rise
 (overshot the goal)
 Like a mope in a mele; he gazt in a mire,
 Like a fool in a mill; he gazed in amazement,
 Than stalket an gandelt wi' "Oh!" an gridane,
 Then stalked and rambled, with "Oh!" and (a) cry,
 "Our joys all y-smoort ing a emothee knoghane."
 "Our joys all be-smothered in an emmets' hill."

XIII.

"Ha, oh! be me coshes, th' ast y-pait," co Jone,
 "Ha, oh! by my conscience, thou 'st paid it," quoth John,
 "You 're w' thee crookeen, an ye me thee hone."
 "You 're with thy (self) vexed, and give me thy hand."
 'He na nouth fade to zay; llean vetch ee man;
 One not knows what to say; mischief fetch the man;

* Cowlee—*vide supra*, note p. 13.

† There is some obscurity here. Vallancey reads, "He it nouth," &c., "He that knows what to say," which makes no definite sense.

Twish thee an Tommeen, an ee emothee knoghane.
 'Twixt thee and Tommy, and the emmets' hill.

XIV.

"Come w' ous, gosp Larry, theezil on Melchere,
 "Come with us, gossip Larry, thyself and Melchior,
 Outh o' me hone 'chull no part wi' Wathere."^(Miles)
 Out of my hand I shall not part with Walter."

Iowan got leigheen, she pleast ame all. Fow?
 Joan got laughing, she pleased them all. How?

Sh'ya ame zim to doone, as w' be doone now.
 She gave them some to do, as we be doing now. (Drinks.)

Zo bless all our vreends, an God speed ee plough.
 So bless all our friends, and God speed the plough.

There can be no doubt that this song is genuine, and represents the dialect as actually spoken about the middle of the last century. The actual date of its composition is not known, but I am not disposed to attach to it a very high antiquity. Apart from its dialectic peculiarities, the phraseology is not very archaic. Probably the latter half of the seventeenth century would not be far from the period of its composition.

The address to Lord Mulgrave, the only other existing specimen of the dialect, stands on a different footing from the song. In 1836 the dialect had become almost entirely extinct, and the attempt to get up an address exhibiting its peculiarities was attended with considerable difficulty. It was really prepared by Mr. E. Hore, of Wexford, a gentleman who has devoted great attention to the subject; and it puts together, in a very interesting manner, the fragmentary remains which still survived at the time in the recollection of the country people, who had been accustomed to the dialect in their youth.

BARONY FORTH ADDRESS.

To 's Eccellencie, Constantine Harrie Phipps, y' Earle Mulgrave,
 "Lord Lieutenant-General and General Governor of Ireland,"
 ye soumissive spakeen o' ouz, Dwelleres o' Baronie Forthe,
 Weisforthe.

Mait be plesant to th' Eccellencie,

Wee, Vassales o' "His Most

We, subjects of "His Most

Gracious Majesty," Wilyame ee Vourthe, an as wee verilie chote na
 Gracious Majesty," William the Fourth, and as we verily believe both
 coshe and loyale dwelleres na Baronie Forthe, crave na dicke luckie
 faithful and loyal inhabitants of the Barony Forth, crave at this happy
 acte t' uck neicher th' Eccellencie, an na plaine garbe o' oure yold
 opportunity to draw near your Excellency, and in the plain garb of our old
 talke, wi' vengem o' core, t' gie oure zense o' ye grades whilke
 speech, with earnestness of heart, to give our sense of the qualities which
 be ee-dighte wi' yer name, an whilke we canna zei, albeit o'
 are put on with your name, and which we cannot say, except (that) of
 (characterise) Governere, Statesman, an alike. Yn ercha an al o' while, yt beeth wi'
 (express) Governor, Statesman, and the like. In each and always, it is with
 gleesom o' core th' oure eyen dwytheth apan ye Vigere o' dicke
 gladness of heart that our eyes rest upon the Vicegerent of that
 (look) Zouveraine, Wilyame ee Vourthe, unnere fose fatherlie zwai oure daiez
 Sovereign, William the Fourth, under whose fatherly sway our days
 be ee-sprant; as, avare ye trad dicke londe, yer name was ee-kent var
 are spent; as, before you trod this land, your name was known for
 ee vriene o' libertie, an he fo brake ye neekares o' zlaves. Mang
 the friend of liberty, and he who broke the fetters of (the) slaves. Among
 ourzels, var we dwytheth on Irelande az oure generale haimie, y' ast,
 ourselves, for we look on Ireland as our general home, you have,
 (common country) bie raetzom o' honde, delt t' ouz ye laas ee-mate var ercha vassale,
 by impartiality of hand, dealt to us the laws made for each subject,
 (with) ne'er dwythen na dicke wale na dicka. (ministered) Wee dwyth ye ane fose
 never looking on this party nor that. We regard you one whose

daies be gien var ee gudevare o' ye lond ye zwae, t' avance pace
 days are given for the good fare of the land you sway, to advance peace
 an livertie, an, wi' oute vlynch, ee garde o' generale reights an
 and liberty, and, without flinching, the guardian of common rights and
 poplar vartue.
 popular virtue.

Ye pace, yea, wee mai zei, ye vaste pace, whilke bee ee-stent our
The peace, yea, we may say, the vast peace, which is extended over
ye londe zince thaat ee cam', prov'th y'at wee needeth alane ye giftes o'
the land since that you came, proves that we need only the gift of
generale reights, az be displayte bie ee factes o' thie goveremente. Ye
common rights, as is displayed by the facts of the government. The
state na dicke daie o' ye londe, na whilke be nar fash nar moile, albeit
state at this day of the land, in which is neither trouble nor disorder, but
"constitutional agitation," ye wake o' hopes ee-blighte stampe na yer
"constitutional agitation," the result of hopes blighted, stamp on your
zwae be rare an lightsom. Yer name var zetch avanet avare
sway (to) be rare and enlightened. Your name for such advanced before
ye, e'en a dicke var bye, arent whilke ye brine o' zea an ye craggess
you, even to this far place, to which the brine of (the) sea and the crags
o' noghanes cazed nae balke. Na oure glades ana whilke wee
of (the) mountains caused no hindrance. In our glades, in which we
dellt wi' mattocke and zing t' oure caules wi' plou, wee hert
delved with (the) mattock and sung to our horses (in the) plough, we heard
ee zough o' ye colure o' pace na name o' Mulgrave. Wi' Irishmen
the sough of the dove of peace in (the) name of Mulgrave. With Irishmen
oure general hopes be ee-bond. Az Irishmen an az dwelleres, na
our general hopes are bound up. As Irishmen and as inhabitants, both
cosh an loyale, o' Baronie Forthe, wi' oul daie, an ercha daie, oure
faithful and loyal, of (the) Barony Forth, we all daily, and every day, our
meines an oure gurlles, prai var lang an happie zins, shorne o' lournagh,
wives and our girls, pray for long and happy suns, deprived of melancholy,
an ee-vilt wi' benisons, an yerzel an oure gude Zovereine, till ee zin
and filled with blessings, on yourself and our good Sovereign, till the sun
o' oure daies be var aye be ee-go t' glade.
of our days be for ever gone to the glade.

I have preserved throughout the spelling as it is given in both the documents.

The orthography of the two somewhat differs, as might naturally be expected. In fact, in an inquiry of this kind, the mere difference of spelling, unless it has a phonetic value, must be thrown out of consideration. Reducing to writing a dialect without a literature is subject to the caprices of those who take it down, and the tendency is always to exaggerate rather than extenuate the peculiarities.

Except for the purpose of looking strange and old-fashioned, there can be no object in writing "oure talke" instead of "our talk." In the same way, "Wilyame" for "William," "daiez" for "days," "wee" for "we," "reights" for "rights," "lluck" for "luck," "verilie" for "verily," "leigh" for "lie," "yn" for "in," *cum multis aliis*, are mere surplusage, and present no dialectic differences whatever.

We have next to eliminate a number of words which look outlandish, but which are merely contractions, and which may be found in any dialect. Such are—

Vigere	for viceregent, or viceroy.
Gosp	„ gossip.
Yerstey	„ yesterday.
'at	„ that.
't wode	„ that would.
W' are	„ with their.
W' eem	„ with them.
H' had	„ they had.
Brough	„ broke.
Coshes	„ conscience.
Co'	„ quoth.
I' t' heap	„ on a heap.

After making these allowances, there is still left a large remainder, of a very interesting nature. This will probably be best illustrated by tracing the origin of many of its words and expressions, and by pointing out the archaic character of many of its forms.

Tradition and history both point to the colonisation of this district from the West of England in the twelfth and thirteenth centuries. We naturally turn, therefore, to Devon and Somerset, and inquire how far the common speech on both sides of St. George's Channel is analogous. On examination we find in many respects there is a remarkable similarity. Of course it is only in a general sense that the analogy can be traced, as different parts of Somerset and Devon have their own local peculiarities.*

In pronunciation we have in both dialects the substitution of the soft for the hard sibilant—

Zins	for suns.
Zim	„ some.
Zince	„ since.
Zunk	„ sunk.
Zar	„ serve.

The medial employed for the tenuis—

Avare	for before.
Vrom	„ from.
Vor	} „ for.
Var	
Vell	„ fell.
Vlie	„ fly.
Vetch	„ fetch.
Dap	„ tap.
Dearn up	„ turn up.
Dicke	} „ this.
Dicka	

The lengthening of the vowels—

Speen	for spend.
Vreend	„ friend.

* “I think there can be no question that the Irish colonists were from the West of England, and most probably from Somersetshire, but of what part is not so easily determined, perhaps from different parts of the county; and from the apparent admixture of dialects, evident in the vocabulary and the song, this I should suspect to be the case.”—Jennings' *Observations on some of the Dialects of the West of England*. London, 1825.

Many of the contractions are also identical —

Nouth for knoweth not.

W' oul „ we will.

Amezill — Devon, 'emzill — themselves.

Ch 'am for I am.

Ch' ull „ I will.

Ch' ote „ I wot (know).

The 'ch is a contraction of the Anglo-Saxon *ic*, German *ich*, *I*.

Many peculiar words are also common to both dialects—

IRISH.	DEVON.
Louthee,	lewth—shelter.
Bibbern,	bivering—trembling, quivering.
Ete,	eth—earth, used in the sense of homestead.
Blakeen,	blake—to cry till out of breath.
Vezzen,	veazen—to thrust, to squeeze.
Tarvizzen,	tarvy—to struggle (Cornish).
Fausteen,	foust—dirtied, spattered.
Heifteen,	heft—weight.
Skirr,	skeer—to skim along.
Mistern, dimmed; mistree, dim sighted.	

There are some peculiarities of pronunciation partially referable to the West of England dialect, but which cannot be entirely identified, such as—

Lass	for less.
Jist	„ just.
Ing	„ in.
Hone	„ hand.
Stone	„ stand.
Errone	„ errand.
Alogh	„ below.
Kink	„ kick.
Nize	„ nose.
Read	„ red.
Rishp	„ rush.
Gother	„ gathered.
Wourlocked	„ overlocked (interwined).
An-an-oree	„ one on another.

Shullereen	for shouldering.
Emothee	„ emmet—ant.
Emothee-noghane	„ an ant hill.
Harnoths	„ earth-nuts.

Notwithstanding the boast of the inhabitants of the seventeenth century, that “before the last rebellion they had kept their language, loyalty, and religion all equally pure,” there is found a considerable admixture of Irish Gaelic words in the dialect as presented to us. Vallancey says (see above) —

“Within the last fifty years (before 1788), as population increased, some of the English have been obliged to remove into the neighbouring baronies, and, by an intercourse with the Irish, the language of these emigrants became corrupted, and these, by their connections with their kindred remaining in the baronies, have in some measure introduced this corrupted dialect there.”

The following are a few specimens of the Irish introduction :—

ENGLISH.	IRISH.
Coshe, faithful.	Cois-glidh—cois, near; gleidh, to keep.
Dwytheth, beholdeth.	} Dwithir, the dawn, the light of the morning.
Dwythen, sight, regard.	
Fash, restraint.	Fasg, band, bond, a prison.
	Fasinghim, to destroy, lay waste.
	Ffasg (Camb.), a bundle, anything tied up.
Moil, disorder.	Moill, delay, hindrance.
Knaghane, } hills.	Cnoc, a hill.
Noghane, }	Cnocan, a little hill.
Wake, consequence, result.	Uachd, testament, will.
Caules, horses.	Capull, horse; no doubt a derivative of Low Latin Caballus.
Curcagh, out of sorts, tired.	Currthæ, weary, fatigued.
Millagh, clover, grass.	Millich, grass.
Donel, a simpleton.	Dona, a poor-unfortunate fellow.
Commane, a hurling club.	Comán.
Corkit, tumbling, struggling.	Cor, wrestling.

	Crochan, to beat, pound.
	Crogach, pawing, clawing.
Clugercheen, a crowd, a cluster.	{ Clugain, Clugaineach, } a cluster.
Lluskes (of sheep), flocks or droves.	{ Luisgim, to drive.
Bathes, the goal (at hurling).	Bata, a stick, pole.
Arcagh, eager, impetuous.	Ardgha, valiant.
Barnaugh blow.	Barra* is the bar, <i>nach</i> the adjecti- val termination. Barnaugh blow is the blow which strikes the bar or goal.
Gridane, an gridane, at a sudden stroke.	{ Greid, a blow or stroke.
Crookeen, vexed.	Cruachog, jeopardy, distress.
Lean, sorrow, mischief.	Lean.

The Cowlee man or goal keeper has been mentioned above. The term seems derived from Irish *coil*, a corner, a place fenced off.

There are a few words which find their counterparts in the Flemish and Old Frisian. A Flemish colony was early planted in Pembrokeshire, from which quarter many of the Wexford colonists were drawn.

IRISH.	FLEMISH.
Vengem, strength, earnestness.	Veninge, trust, confidence.
Raetzom, impartiality.	Ratisca, judgment, estimation.
Lournagh, melancholy.	Loeren, to lour.
Scoth, shirt.	Old German scato, a covering.
Lug, a hollow, low land.	{ Leeg. Lagh.

For one or two we must have recourse to the Danish. It is a little remarkable that so few should be found :

* The term barra or bars, for the goal of a game, is not peculiar to Ireland. We find it in the ancient literature of England :—

“Went he on a day to play,
As children doe atte bars.”

Legend of Pope Gregory.

ENGLISH.
Neekares, fetters.
Bye, a place.

DANISH.
Hneckia, to hinder, impede.
By, as found in the Danish terminations of names of places, as Kirk-by, Form-by, &c.

Danish influence can also be traced in the peculiar form of several common participles and pronouns :

Fose, whose.	Danish, hvis.
Fo, who.	„ hvo.
Whilke, which.	„ hvilke.
Fan, when.	
Fade, what.	

The original settlement having been in part composed of Anglo-Normans, we might reasonably expect to find some remains indicating this connection. There are not many however :

ENGLISH.	NORMAN FRENCH.
Core, heart.	Cœur.
Benisons, blessings.	Benison.
Meinies, wives and families.	Mesnie, a family.
Hachee, ill-tempered.	Hache, tired, fatigued.
Poustee, power.	Poste.
“ Yea, sir, but Richesse hath <i>poste</i> .”	
	CHAUCER, <i>Romaunt of the Roses</i> , 6484.
“ Thou hast been warned ofte, With <i>poustees</i> of pestilences.”	
	PIERS PLOUGHMAN, <i>Vision</i> , 7455.
Lous, praise, praised.	
“ Among a basket full of roses, This favor did he to hir <i>loses</i> .”	
	CHAUCER, <i>House of Fame</i> , 3—598.
Kew, to shake	Quav; Eng. quaver.
“ The wal wagged and cleef, And al the world <i>quaved</i> .”	
	PIERS PLOUGHMAN, <i>Vision</i> , 12195.
Mire, wonder, amazement.	Mirer.
Avanet, arrived.	Avenir.

The most interesting part of the inquiry yet remains. ter making every allowance for mere corruptions and false

spelling, for derivations from West Saxon, Irish, Danish, Flemish, and Anglo-Norman, there are many archaic forms and expressions, which carry us back to a very early period in the history of our language, and which are well worthy of observation.

The syllabic augment to the past tenses and participles, once common to all the Teutonic tongues, but now confined to the German, is here to be found. "A draught was *ee-made*" is equivalent to the German *gemacht*, or to the Anglo-Saxon *ge-macod*. In English it softened down to the prefix *y*, in which form it is commonly found in Chaucer and other writers of the fourteenth century, after which it disappears, except in a few words, such as *y-clept*, &c. A little of it still survives in the West of England dialect, in such phrases as—"I 've a-heard tell." "What he 'd a-lost." "When are you a-comin?" In the Wexford dialect it seems to occupy its original position, *e. g.*, *ee* or *y-dight*, *y-paid*, *y-stent*, *y-taught*.

Several strong preterites have been here preserved, not found in use at the present day, such as—

Daff, strong preterite of doff.
Hap, do. of hope.

Many obsolete expressions and forms present themselves—

Gude-vare, for welfare.
Colure, dove-pigeon; Anglo-Saxon *culver*.
Balk (substantive), in the sense of hindrance.
Sprant, passed away; Anglo-Saxon *sprengan*.
Stent, spread abroad; Anglo-Saxon *stiltan*, to arrange, dispose.
Dight (*dight ouz*), prepared ourselves; Anglo-Saxon *dihlan*.
Gleesom, joy—the adjective used for the substantive.
Grades, qualities; Anglo-Saxon *grad*. Compare South Lancashire *gradely*, properly.
Yola, old; Anglo-Saxon *yldo*; Old Frisian *ield*.
Hi, Anglo-Saxon form for *they*.
Lidge, lie; Anglo-Saxon *ligan*.

Troll, for roll; Anglo-Saxon *thyrlan*.

Gandel, to ramble; German *wandeln*.

Yie for give	}	yife, late Saxon.
Yate „ gave		
Yith „ if		

“ Wel ought a preest ensample for to *yefe*.”

CHAUCER, *Prologue*, 507.

Blayeen, bellowing, crying out.

“ Tell her in your piteous *blaying*,
Her poor slaves' unjust decaying.”

Brit. Bibl., 1—104.

Joud an Moud, crowds and throngs; Anglo-Norman *jouste*, *joûte*,
a tournament; Anglo-Saxon *mót*, a popular assembly.

Mot is also used as a verb, to discuss, tell. It may be connected
with Anglo-Saxon *mót*, or with French *mot*.

Mot, in the sense of “but,” is probably the imperative of Anglo-
Saxon *mót*—*mótan*, must.

Snite, to hasten, run up.

In the *Cod. Exon.*, “*snythian*” is used in the same sense.

Mope, a fool.

“Nor shalt thou not thereof be reckoned the more *moope* and foole, but the
more wise.”—VIVES, *Instruction of a Christian Man*.

Mislere, stupidity; from Anglo-Saxon *mis*, prefix of defect, and
lár, lore, learning.

Louthee, sheltered.

“ He fond this holy Urban, anon,
Among the seintes buriels *louting*.”

i.e., lying in a sheltered place.

CHAUCER, *Second Nonne's Tale*.

Zin go t' glade. Rather a poetical expression for the setting sun.

Ye, ee, for “the.”

Y' at „ that; y' ast, you have.

Ee „ they.

Arent, to, motion to. Comp. Anglo-Saxon *ærend*, a message.

Valler, value, used in the sense of extent, space.

Gazb, dust—“th' gazb mate all rize.”

This is a word of doubtful origin. The nearest approximation I can find is in the Old Frisian and Low Saxon *gast*
or *geest*, high dry land, in contradistinction to marsh land.

It cannot be supposed that the meagre remains of the
dialect which have survived, contain the whole, or nearly so,

of the dialectic peculiarities, but enough is left to indicate the nature of the dialect, and to point out, in a general way, the sources from whence it has been derived.

If we carefully analyse any of our provincial dialects, we shall find that by far the greater portion of the abnormal characteristics are owing to bad spelling,—in many cases unnecessary,—to difference of pronunciation, to contractions and corruptions of common words, and to bad grammar. If we eliminate these portions, the residue, the only really interesting part, consisting of archaic and obsolete words and forms, and words derived from other languages, will be found very small. This, indeed, must be the case, or a provincial dialect would, in the course of time, become a distinct and separate language. The use of a written and literary standard, in any country, exercises a powerful influence over its dialects, and prevents them departing from it beyond a certain point. However diverse from each other the High and Low German, the Scandinavian, and the English languages may now be, there was a time when, to a great extent, they were mutually intelligible, each tongue being merely a dialect of the general speech.

This is shewn, in regard to two of them at least, in a very interesting manner by a Low Dutch ballad, said to be of the twelfth century, which appeared in a review in the *Times* of Sept. 10th, 1866, with an English translation, or rather paraphrase, and was copied into *Notes and Queries* of Oct. 20th. The date is a little earlier than the Biblical paraphrase of Ormin, commonly called the Ormulum, one of the most valuable links of connexion between Anglo-Saxon and Modern English. Every word in the ballad is common both to Dutch and English, and the syntax is the same in both. The spelling of the words differs, which is a matter of small consequence, and many words have fallen out of use in Modern English. I give the old Nieder-Deutsch version,

with the English equivalents verbatim, in parallel lines, marking in italics those words which have fallen out of use, but which are nevertheless sound English of the olden time. In some words which are not obsolete, I have preserved the final extra syllable, and in others the final *e*, to accommodate the rhythm.

I.

Naer Oostland willen wy ryden,
 Nigh* Eastland willen we ride-n,
 Naer Oostland willen wy mée; †
 Nigh Eastland willen we *mid*;
 Al over die groene heiden,
 All over the greene heath-e,
 Frisch over die heiden,
 Fresh over the heath-e,
 Daer iss er en betere stée. ‡
 There is *ane* better-e *sted-e*.

II.

Als wy binnen 't Oostland komen,
 As we *binnon* || th' Eastland come-n,
 Al onder dat hooge huis fyn;
 All under that high house fine;
 Daer worden wy binnen gelaten,
 There *wurdon* § we *binnon* *gelatan*. ¶
 Frisch over die heiden,
 Fresh over the heath-e,
 Zy** heeten ons willekom zyn.
 They *haten* †† us welcome *syn*. ‡‡

* The Anglo-Saxon *neah*, High German *nach*, *nahe*, Low German *naar*, all signified motion towards a place, as well as propinquity.

† *Mée*, contraction for *mede*, equivalent to High German *mit*, Anglo-Saxon *mid*—together, with.

‡ *Stée*, contraction for *stede*, a place.

|| Anglo-Saxon *binnon*, within; Scottish *ben* the house.

§ Anglo-Saxon *wurdon* = would-on, would.

¶ Anglo-Saxon *ge-latan*, to let be, remain.

** Anglo-Saxon *hi*. †† Anglo-Saxon *haten*, to call, ask.

‡‡ Anglo-Saxon *syn*, to be.

III.

Ja, willekom, moeten wy wezen,
 Yea, welcome, might-en we *wesen*,*
 Zeer willekom, moeten we zin;
Sair † welcome might-en we *sýn*
 Daer zullen wy, avond en morgen,
 There shall-en we even and morning,
 Frisch over die heiden,
 Fresh over the heath-e,
 Noch drinken den koelen wyn.
Nu ‡ drink-en the cool-en wine.

IV.

Wy drinken den wyn er met schalen,
 We drinken the wine there *mid scealum*, ||
 En 't bier ook zoo veel ons beliest;
 And th' beer eke so *fela* § us *leve*; ¶
 Daer is het zo vrolyck to leven,
 There is it so *freolic* ** to live-n,
 Frisch over die heiden,
 Fresh over the heath-e,
 Daer woanter myn zoete lief.
 There *woneth* †† my sweet-e love.

Parallelisms of this kind might be pursued much further between the Anglo-Saxon and Old German, and between both of these and the Gothic.

The consolidation of tribes into nations, and the growth of written documents, led to the selection of one dialect in each country as the standard for its literature. Why the particular speech adopted in each language should have been so selected, it would be difficult in many cases to say. The

* Anglo-Saxon *wesen*, to be. † Anglo-Saxon *sár*, very, greatly.

‡ Anglo-Saxon *nu*; High German *noch*, still, yet.

|| Anglo-Saxon *scealu*, cups. § Anglo-Saxon *fela*, much.

¶ Anglo-Saxon *leven*, to please, desire. ** Anglo-Saxon *freo-lic*, free-like (*frolic*).

†† Anglo-Saxon *wunnan*, *wonnan*, to dwell.

reasons for the adoption of the Middle and South Saxon in England as the standard, were doubtless owing to the superior cultivation in that part of the country; but the preference in France of the Langue d' Oil to the Langue d' Oc, which was graced by much of the early literature of the Middle ages, is not so easy to account for. The adoption of the High Saxon in Germany, and the Tuscan in Italy, as the literary dialects, may be traced to historical circumstances. It must, in all cases, be an interesting study to examine and compare the provincial dialects which have lagged behind the progress of literary speech, and which assist in throwing light on the changes which have been, and still are, proceeding in every language which is the living utterance of mankind.*

* This has been done with great success by M. Cesare Cantù, in his *Storia degl' Italiani*, in which the chapter on the language of Italy, from the earliest to the latest period, is full of the deepest philological interest.

SEVENTH ORDINARY MEETING.

ROYAL INSTITUTION, January 21st, 1867.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

Mr. Thomas Gibson, Jun., was balloted for, and duly elected a member of the society.

Mr. MOORE exhibited a collection of marine specimens, obtained by Captain Thompson, ship "Vanda," Associate of the Society, between Liverpool and Bombay, among which was a beautiful worm of the genus *Chlocia*. He also exhibited a series of specimens of lava from Vesuvius, collected by the Rev. J. L. Darby, of Newburgh, Ormskirk; and a mounted skeleton of the Virginian eagle, *Bubo Virginianus*, beautifully displaying the ring of bony plates surrounding the eye, which ring is more largely developed in owls than in any other birds.

The following paper was then read:—

ON THE LITERATURE OF EXPEDITIONS TO THE NILE.

By ALBERT J. MOTT, Esq.

A large French Map of Africa, dated 1671, discloses in a curious way the state of Geographical science two centuries ago.¹ The kingdom of Abyssinia is found about fifteen hundred miles from its proper frontier, the province of Gojam being placed in the very centre of South Africa, about the latitude of Angola and Mozambique. South of Gojam are two enormous lakes, out of which the Nile is made to flow in two branches, meeting at 3° north of the equator, while at the southern end of one of these lakes are placed the Mountains of the Moon. The map itself, besides being full of cities and rivers, is covered with mountains, scattered over all waste places and unknown territories. The draughtsmen of that age seem to have thought that the objection to a vacuum should be recognised even in maps, and that wherever nature was not known to have put anything else on the dry land, she ought at least to have put a hill. On the same principle, perhaps, the paper oceans of those days are full of fishes as big as Madagascar, with mouths like the Black Sea. Another map of the same continent, printed at Venice about a century earlier, is substantially the same.² Maps, indeed, represented not so much the knowledge as the conjectures of that period; and the first effect of modern

¹ *Carte de l'Afrique, &c.*, Paris 1671. British Museum. See the Dutch Maps of the period.

² *Il disegno della Geografia*, Venetia, 1564. British Museum. See Munster's *Cosmography*.

scientific inquiry in geography, as in most other matters, was to sweep away into the region of the unknown three-fourths of what our forefathers took for granted.

In Arrowsmith's large map, of so late a date as 1832, the whole of the central parts of Africa are nearly blank paper, except a narrow belt across the continent from Senegambia to the Red Sea. A little south of this a continuous chain of mountains, stretching from Sierra Leone to the Strait of Bab-el-Mandeb, is made to divide Africa in two. The lakes have vanished; indeed they disappeared a century before. Abyssinia is pretty correctly laid down, but the Blue river is still called the Nile, and the sources of the White stream are placed at about 8° north latitude.

The last quarter of a century has been a period of reconstruction, and the beautiful map just published by Mr. Stanford gives a summary of the results. The central mountain chain has followed the other phantoms, and there are still enormous blanks; but what is laid down now is for the most part authentic, and, since the time of Columbus, there has been no greater era of discovery.

The most exciting thing in any map of Africa has always been the river Nile. Its history is a long romance. It nourished almost the earliest civilisation; it flows by the oldest buildings in the world. The great kings of Egypt had sailed upon it, and their mummies had been ferried across it before Moses was born. It drew to its banks the first Israelites, the first Christians, the first Mahomedans. The lower half of it remains to this day in the hands of one of the most singular nations on the face of the earth; and what we call our Eastern question must one day be settled on its shores. Its upper half flows through a world of wonders, stretching into regions even now unknown; and the search for its actual sources has been a kind of knight-errantry for more than two thousand years. That search has called forth

a number of expeditions, and these, especially of late, have produced a literature of their own—a literature sufficiently interesting, and now sufficiently extensive, to be worth reviewing as a whole. What I can offer you myself is only a short notice of some portions of it, written chiefly in our own language, or in French.

The first recorded journey of discovery to the Nile is that of Herodotus. How much he saw himself is not very clear. He did not go beyond the Island of Philœ, in north latitude 24° . Of the source of the Nile he knew only the story told him about the spring between the two rocks, Crophi and Mophi. In his eyes the full flood of the river was its natural volume, and it was the shrinking, not the swelling, of its waters that had to be accounted for. He explains it accordingly, and in an amusing way. The sun attracts at all times a certain quantity of water, and he must get it somewhere. In summer, when he is nearly vertical over Lower Egypt, he has the many great rivers of Europe and Asia within his reach, and he therefore takes but little from the Nile. In winter, driven back to Libya by the storms, he has nothing but the Nile to get the water from, and he drinks it nearly dry.³

We begin therefore in the mists of legend, and fables of all kinds have been associated with the great river down to the present day. There is an old map in which a broad equatorial ocean runs right through the middle of Africa, making its southern half an immense island. The Nile rises in this island, and runs to Egypt under the sea.⁴ Its sources have been found in melting glaciers, in fathomless springs, in subterranean lakes, and in the waves of the Atlantic. It has passed through the lands of the pigmies, the satyrs, and the unicorn; it has been supposed to fertilise a wide-

³ *Euterpe*, cap. 25.

⁴ Vincent's *Periplus*.

spread region, instead of a long and narrow valley; and its Mountains of the Moon, after wandering like the mirage itself through all the principal deserts of Africa, are still without a settled place in modern geography. Even the volume of its waters is at this moment seen in our best authorities under an enormous magnifying power. A note in Rawlinson's *Herodotus* tells us that the Nile at full flood pours into the Mediterranean, through its two principal branches, no less than seven hundred thousand millions of cubic mètres a day.⁵ The same quantity is given in the last edition of the *Encyclopædia Britannica*.⁶ Fullarton's *Gazetteer*, adopting the same data, reckons that the Nile would fill the lake of Geneva in fourteen hours; but adds, with some degree of caution, that there is reason to doubt the accuracy of the calculations.⁷ The reckoning is not doubtful, but a huge impossibility. A river ten miles wide and ten yards deep could discharge this quantity only by running at the rate of above a hundred miles an hour; and a rainfall of one inch a day over the whole continent of Africa would not suffice to keep up this prodigious outflow. The fable has sprung out of an oversight in reading French notation. In England, almost invariably, commas in a line of figures mark off periods, spaces denote differences in value, and decimals are indicated by a point. The French use commas and spaces indifferently for all three purposes, and hardly ever use the decimal point. The authority for the volume of the Nile is Clot Bey's "*Aperçu général sur l'Égypte*," Paris, 1840.⁸ Clot Bey gives the result of M. Linant's careful measurements, and he gives the exact figures quoted by Rawlinson. But only the first nine of them, divided by spaces into periods, are mètres; the last three

⁵ Vol. ii. p. 7.

⁷ Art. NILE.

⁶ Art. EGYPT and NILE.

⁸ Tome. i., pp. 40, 41.

figures, cut off by a comma, are decimals.⁹ The effect of the oversight is of course to multiply M. Linant's result by a thousand, and so give us the volume of a thousand Niles instead of one. This is not a bad example of one of the sources of mythology; and it is so much easier to set a fable on its legs than to knock it down again, that the story of the Nile filling the lake of Geneva in fourteen hours will be told, I dare say, to our children's children. I believe Professor Chaix, or his printer, was the originator of this particular story. He made the calculation, in a short paper in vol. xix of the *Geographical Society's Journal*. His figures as printed are not intelligible; they make him misread his own decimal notation. He makes 8,000 to be 4,600 times as much as 1,700, and then appears to divide the error by 10; for the volume attributed to the Nile would really fill the lake in an hour and a half, instead of fourteen hours.

The Crophi and Mophi of Herodotus are generally laughed at, but as our latest travellers bring us the names of Koshi and Chopi, as two mountain regions on either side of the Albert Nyanza, it seems possible that the old historian may have heard real echoes of the truth from the priest of Sais.

Attempts at farther exploration were made by various monarchs before the Christian era, but the next expedition of much importance is that of Nero's two centurions. They were sent expressly to find the sources of the Nile, and reached apparently the marshy regions of the White river; according to the short account given by Seneca. He supposes the water to come from an under-ground lake; says it was reported to have been salt formerly; and examines the current theories about the annual overflow. The opinion, which he calls that

⁹ The figures are—

Cubic Mètres.

English authorities 705,514,667,440

Clot Bey 705 514 667,440

of all antiquity, that melting snows on Ethiopian mountains supplied the current; the fable which brought it from the ocean; and the fancy, something like that of Herodotus, that the water was reduced in summer by absorption in the dry earth, are severally rejected. He leaves the question open, saying, wisely enough, that if we could find out where the Nile begins to swell, we should learn the cause of the inundation.¹⁰

The centurions, or those with them, brought back more information than Seneca preserved, or other travellers did so in the next century, for Claudius Ptolemy knew more than this about the Nile geography. We may readily suppose that, during the height of Imperial splendour at Rome, the demand for elephants and for ivory would lead to intercourse with the districts where they are most abundant now, and where they must always have been so, for wild animals must follow their food. Ptolemy knew at all events that the Nile came from a region of lakes and mountains south of the equator. Whether we know more than he did, may still be an open question. His eastern lake perhaps waits to be discovered, and his Mountains of the Moon are likely to settle down not far from the position he assigned to them.

From the days of Ptolemy, no further knowledge of these districts was gained for more than a thousand years; they were impenetrable even to Moslem fanaticism, though the Mahommedans over-ran many parts of Africa, and obtained an imperfect knowledge of the rest; such as was detailed by Al Edrisi in the twelfth century.¹¹ About the year 1300, Marco Polo gave descriptions of Africa from information gathered in his Asiatic travels.¹² Soon after, Ibn Batuta thought he had found the Nile near Timbuctoo; but his river was the Niger.¹³ Very early in the sixteenth century, Portuguese ships sailed up

¹⁰ *Quæst. Nat.* lib. 6.

¹² Vincent, vol. i., p. 203.

¹¹ Vincent's *Periplus*, vol. i., p. 83.

¹³ Lee's translation.

the Red Sea, and Covilham and others were sent on embassies to Abyssinia. They were furnished with maps, prepared in Portugal, partly no doubt of Moorish origin, and they sent back additional intelligence.¹⁴ Our early maps of Africa, before the time of D'Anville (reign of George I.), were compiled chiefly from these materials; but the information beyond the coast-line was extremely inaccurate, and was distorted by a fundamental error. The distinction between the Blue and White Niles was not understood. Actual knowledge was confined to the first; report and tradition referred often to the second; and the attempt to reconcile these with each other, with Ptolemy's statements, and with fables about the vast extent of the Abyssinian empire, led to those singular geographical paradoxes already noticed.¹⁵

At the end of the sixteenth century the Portuguese Jesuits began their missionary efforts in Abyssinia. Peter Paez (who died in 1622), Alphonso Mendez, and Jerome Lobo, who arrived there a year or two afterwards, gave accounts of their travels, which were made known chiefly through the writings of Kircher, Tellez, and the Abbé Le Grand. Paez was said to have discovered the source of the Blue Nile in 1618. He was able at all events to describe it pretty correctly, and Lobo did the same.

These missionaries, however, had no instruments for determining latitudes and longitudes. Bruce and others have dealt with them as if their chief interest must have been a geographical one; but they went to deal with heresies, not to lay down maps; and their notions about Gehenna, and the road into it and out of it, were much more definite than any they entertained about the tropics of the upper world.

The enormities of the maps were corrected by D'Anville,

¹⁴ Vincent, vol. i., p. 196; and Michaud. *Biograph. Universelle*.

¹⁵ See also map in Munster's *Cosmography*, 1550.

early in the eighteenth century,¹⁶ when the position of Lake Dembea and of the province of Gojam became pretty accurately known, the boundaries of Abyssinia were moved some ten degrees eastward and some twenty degrees northward, and a certain ignorance began to be confessed as to the political and geographical divisions of the vast interior.

English literature on the subject may be said to begin in 1734, when Dr. Johnson, then twenty-five years old, published his first work. The book was a translation of Jerome Lobo's account of Abyssinia and the sources of the Blue Nile, from the French version published in 1728 by Le Grand. It was printed at Birmingham and issued anonymously, and it appears to have attracted little attention at the time. But fifty-five years afterwards, in 1789, soon after Johnson's death, this work was republished; and it then became the cause of a violent controversy.

Bruce, whose travels in Abyssinia were undertaken in the years 1768 to 1773, was preparing his five quarto volumes for the press.¹⁷ He had claimed to be the discoverer of the source of the Nile, but had published no account of his journeys. The validity of this claim, and even the fact of his having ever reached Abyssinia, were doubted; Johnson himself had said satirically that when he first conversed with Mr. Bruce, the Abyssinian traveller, he was very much inclined to believe that he had been there; but that he had afterwards altered his opinion. After that, there could be no good feeling between Bruce and Johnson, and the appearance of Lobo's narrative, recommended by the name of the now famous Doctor, just as the traveller was about to publish his own account, must have been galling in the extreme. For if Lobo is to be believed, the sources of the Blue Nile had been discovered by the Jesuits, one hundred and fifty years

¹⁶ See maps in Rollin, Harris, &c.

¹⁷ *Gentleman's Magazine*, vol. lix., p. 543.

before Bruce visited them; and there is really no reason to doubt it. Bruce's work came out in the following year, 1790; he attacked Jerome Lobo and all his brethren with extreme bitterness, and retorted on them the accusations of falsehood made against himself. He pointed to various inaccuracies in their descriptions, as proofs that they had never seen what they described, but he did not show by what other means they could have obtained their general information. The source of the Blue river at the foot of a mountain, its eastward course for a short distance, its sudden bend northward, its relation to lake Dembea, and the names of some of its first affluents, were correctly given by the Jesuits, and maps of tolerable accuracy were drawn long before that of Bruce.¹⁸ The cause of the annual inundation, which is chiefly due to the violent summer rains on the Abyssinian mountains, poured suddenly down the Atbara and the Blue Nile, was also explained by the missionaries; so correctly, that it is surprising there should have been any doubt about it afterwards.

In this too Bruce was anticipated. He traversed, however, a great part of Abyssinia, and returned by Sennaar and Upper Egypt. "In which dreadful circle," he says, "was contained all that is terrible to the feelings, prejudicial to the health, or fatal to the life of man."

Bruce was a better writer than most of those who have followed up his discoveries, and his courage and spirit as a traveller were equal to theirs. He carried instruments, including a three-foot quadrant, and made observations of great value and accuracy. He added nothing to our knowledge of the White Nile; in fact, he knew nothing about it, and its course as marked on his map is a complete mistake from the beginning. Better information concerning it was obtained a few years afterwards by Browne and Major Rennell. Bruce's

¹⁸ See Harris's Map of Africa, 1748.

work, notwithstanding its many excellencies, is bulky and wordy, full of egotism and personal vanity; faults only too conspicuous in the writings of his successors. Looking down on the source of the Bahr el Azrek, he exclaims, "I enjoyed here for the first time the triumph which already, by the protection of Providence and my own intrepidity, I had gained over all that were powerful, all that were learned, since the remotest antiquity."¹⁹

That is the key-note of his story, as it has been of many others. An intense ambition carried the traveller through appalling difficulties; but it is not a noble passion, for its chief object is the personal triumph of having made the discovery. Men of this kind never do justice to others in the same field. Bruce has been charged with wilful falsehood in relation to the Portuguese. Dr. Beke has shown that he altered his own map in order to discredit their accounts. The spirit in which he writes about them is most objectionable, but it is not worth while to revive the dispute. More accurate knowledge has confirmed Bruce's observations in the main, and has corrected his errors.

It has been thought strange that he should continue to call the Blue river alone the Nile, while he says himself that the Bahr el Abiad is the larger stream; but this was an old and characteristic feature in the Nile problem. It originated, no doubt, in the fact that the annual overflow was the great object of interest in Egypt. To trace the Nile, therefore, was to trace the inundation, and as the flood came chiefly down the Atbara and the Blue river, each of these, and finally the second, came to be regarded as the Nile. Ptolemy was either better informed, or else his map also was an attempt to reconcile accounts brought from both the Blue and White Niles, without sufficient data to distinguish between them.

For thirty years after the appearance of Bruce's work,

¹⁹ Vol. iii., p. 490.

war and its consequences engrossed the attention of the world, and the battle of the Nile became more interesting than any search after its sources.

But in 1823 a French traveller, M. F. Cailliaud, arrived at 10° north lat., somewhere in the meridian of Egypt, and in 1827 M. Linant ascended the White Nile for some distance above Khartoum. Rüppell, Hay, and others followed, and more or less authentic accounts began to be received concerning the moon-worshipping Dinkas, the tall and handsome Shilluks, the copper-coloured Noers, the vegetarian Keks, and other tribes of the White Nile. These accounts are to be found in the *Bulletin de la Société de Géographie*, of Paris, and in the *Journals of the Royal Geographical Society*.

Then the Pasha of Egypt, the famous Mohammed Ali, organised the three expeditions which, ill managed and comparatively unsuccessful in themselves, gave, nevertheless, a completely new aspect to Nilotic geography, and fairly started us in the course of recent discovery.

If Egypt had been in European hands, short work would have been made with the Nile problem. No leaf of the laurel would have been left for Sir Samuel Baker; and Dr. Livingstone would not now have been seeking the river which may settle the level of Lake Tanganyika.* But the Pasha could not change the nature of his countrymen. "Is there any other name for Turks? No! Turks! Basta!" exclaims Werne, in one of his fits of despair.

The first expedition passed the mouths of the Sobat and Gazelle rivers, made a mistake of 3° in its latitude, and returned.

The second expedition reached Gondokoro, where it was actually only one hundred and fifty miles from the Albert Nyanza, with the river itself showing the way, and one of

* Written before the report of Dr. Livingstone's death had reached England.

the party anxious to go on. But it went back without venturing further. It was accompanied by two French engineers, Arnaud and Sabatier, ill chosen adventurers in the service of the Pasha, and by Ferdinand Werne, a German, brother to the physician of one of the Egyptian governors.

Selim, captain of the first expedition, sent an account of it to the Geographical Society of Paris.²⁰ It illustrates the hopeful nature of Turkish proceedings. After calling the old Pasha the *chef-d'œuvre* of creation, the cream of creatures, the essence of all that exists, he proceeds as follows with his diary:—

“Sunday, at five o'clock, arrived the Sheik Elias Achmet, and we told him he must go with us. In reply, he said he did not know the language of the Shilluks, but that one of his relations in Daryèh, named Hidhoun, knowing the language of the Shilluks, would be better fitted to accompany the expedition. Having agreed to this, we sent some one to find Hidhoun. Next day, Monday, our messenger came back, saying he had not found him. Then we sent the Sheik with two soldiers to fetch Hidhoun. On Tuesday, the 19th, when they returned with the latter, it was the ninth hour. The day being far advanced, we passed the night in the same place.” This was when it was of great importance that no time should be lost; but a Turk has always got his Hidhoun to fetch and to wait for. Selim says he fired on the natives beyond the Sobat because he heard they had prepared poisoned food for him. He fired again on another occasion, and, having killed several, he carried off some of the women; sending them back indeed with presents afterwards, but preparing the way doubtless for future difficulties.

Very meagre accounts of the second expedition were published in the same French Transactions, communicated

²⁰ *Bulletin*, vol. xviii., second series.

chiefly in letters from Arnaud to M. Jomard. Arnaud was wrecked at the fourth cataract in returning, and lost all but his journals—at least he said so, making this a reason for his delay in sending fuller information.²¹ But he was charged with complete incompetence, falsehood, idleness, and other vices by his companion Werne, who wrote a long account of the journey, a translation of which was published in England in 1849.

This was one of the worst books of modern travels ever written, and at the same time one of the most important. Nothing but the interest of the subject could drag the reader through its six or seven hundred exasperating pages, in which everything that should be omitted is so mixed with everything that should be told, that a process of mental winnowing of the most aggravating kind has to be kept up perpetually as you read. Leaves upon leaves are mere log books of capital letters; dates, distances, and position have to be hunted up out of a mass of trivial remarks, important observations, ill digested thoughts, and abuse of his companions; probably well deserved. At the same time the interest was paramount. It was to English readers the first generally accessible account of an unknown world, and it was the account of an eye-witness. Those silent marshes of the great African river, where the slow stream brings its floating islands of grass and flowers from the lakes beyond; where the banks are forests of green rushes, or feathery mimosas, and the ambak tree shoots up above the water to open its blossoms in the air; where the hippopotamus and the giraffe, and whatever are largest and most grotesque in the animal world, have their natural dwelling; and where human nature is found in an appalling infancy,—a childhood without innocence as without knowledge,—those regions of burning

²¹ The restraints imposed upon their servants by Turkish governors must be taken into account. I believe Arnaud is still in the Egyptian service.

desert and tropical luxuriance had at last been visited and described, and English imagination has never ceased to dwell upon them with eagerness since Mr. Werne's book appeared.

The Pasha's third expedition had no particular results, nor I believe any published record, beyond some slight notices in the French and other periodicals.²²

These voyages attracted the attention of Brun-Rollet, a Savoyard, who, being young and poor, and finding nothing open to him in the civilised world without money, had resolved, he says, to go where the vile metal was unknown, and seek his fortune among savages. He was trading in Abyssinia when he heard of Arnaud's discoveries. He went to Khartoum, built a boat, and sailed as an ivory merchant up the White Nile. He succeeded in largely increasing the commerce of the district, gained much valuable knowledge, and published an account of his travels, *Le Nil Blanc et le Soudan*, in 1855. He tells some travellers' stories; one for instance, of a tribe, whose married women, when their beauty fades, educate from among their poorest relations young girls to take their places, and require nothing themselves but "*des égards et du respect*." But he seems to have dealt wisely with the natives, and removed many obstacles to friendly intercourse. He established a station at Beligna, near Gondokoro, and explored the Gazelle river for a considerable distance, believing it to be the main stream of the Nile.

Other Europeans followed Brun-Rollet in his mercantile adventures; among them Andrea de Bono, a Maltese merchant, who in 1860 was accompanied by Dr. Alfred Peney, formerly secretary to Clot Bey. A memoir of the life and early death of Dr. Peney, by Malte-Brun, in the Paris *Bulletin*, 1863, is one of the most interesting episodes in the history of Nile discovery. He was

²² See the last note.

a French physician, engaged early in the Egyptian service. He had spent fourteen years in the Soudan before joining De Bono, was thoroughly acclimatised, and carried a pure life of active usefulness into the wild districts round Gondokoro. He travelled east and west of that place, relieving poverty and disease, and died in this occupation, almost suddenly, in July, 1861. His body was carried to Khartoum, and buried there. "His name," says De Bono, "will perhaps remain unknown to the world, because he never had recourse to imposture;" a satire too often merited by travellers in unknown lands.

In the mean time, three German missionaries, Krapf, Rebmann, and Erhardt, settled at Mombas, a little north of Zanzibar, and began to travel among the tribes in the interior. Accounts of their missionary labours, published in 1849, contained the statement, that not far from the equator, and within two or three degrees of the coast, they had seen mountains covered with snow. These excellent men were not very good observers; their reckonings were not exact, their rough maps were palpably wrong, and their statement was received at first with a good deal of incredulity. They were right, however. The great mountain Kilimanjaro has been ascended by the unfortunate Baron Von der Decken and Mr. Thornton, to within a short distance of its eternal snows, and its height is estimated at nearly twenty-three thousand feet, or about that of the Andes.²⁸ The account of this snowy range greatly affected the views of geographers concerning the Nile, and increased the interest excited by Mr. Werne's book. The rest of the work of discovery has been done by Englishmen, and its great results are recorded in the works of Beke, Burton, Speke, Grant, Petherick, and Baker.

Dr. Beke is the veteran of this company of pioneers. His

²⁸ *Journal R. G. S.*, vol. xxxv. p. 21.

own African travels have been chiefly in Abyssinia, but his writings deal with the whole problem of the Nile, and have brought science and sound judgment in aid of its elucidation. In his essay on the Nile and its tributaries, 1847, he came to the important conclusion that the principal chain of African mountains, which he identified with Ptolemy's Mountains of the Moon, would not be found running east and west, but north and south, along the line of the Red Sea and Indian Ocean; that the Abyssinian mountains were in fact continued southward beyond the equator; and that the sources of the Nile should be looked for at their feet.

The general correctness of this view was soon confirmed by Krapf's discovery, and the maps of Africa have been completely altered by it. Dr. Beke also pointed out the comparative ease with which the Nile basin could be reached by starting from the Zanzibar coast, instead of the Mediterranean. His advice was followed, and the splendid discoveries of Burton, Speke, and Grant have been the result. I may add of Baker also; for, although he took the longer route, his journey was suggested by those of his predecessors. Dr. Beke's volume on the Sources of the Nile, 1860, gives the best existing summary of what had been done and fancied on the subject up to that date. It contains among other things a sketch of the Ptolemaic map; sectional drawings of Abyssinia; the results of observation on the levels of the Nile basin, by Russegger and others; and the equivalents of the word Moon in a number of African languages: a matter of very curious interest in connection with the history of the continent.

On the 26th of June, 1857, Captains Burton and Speke began their expedition from the Zanzibar coast; Government having provided part of the funds, and the Royal Geographical Society directing the arrangements. The first object was

to proceed due west, at about 6° south latitude, in search of lakes said to be on that parallel in the interior.

They discovered lake Tanganyika on the 13th February, 1858, about 600 miles from the coast. In July, on their return, Captain Speke first saw the Victoria Nyanza, and on the 4th March, 1859, they were again at Zanzibar. The account of this great expedition, written by Captain Burton, fills the twenty-ninth volume of the *Geographical Society's Journal*, and was published separately in a more popular form. Captain Burton is an experienced traveller, a good linguist, and a careful observer. His account of eastern Africa gives far more solid and varied information than the works of Speke and others, who have often only repeated what he had observed before. But he is on the whole a heavy and fatiguing writer, who instructs much more than he pleases. There is an elephantine tread in his sentences, and he is fond of, or, in one of his favourite phrases, he "affects" all such words as 'ignore,' 'eschew,' 'anastomose,' 'impressionise,' 'sucedaneum,' and 'ever' for 'always;' words good enough in their places, but distressing when they are characteristic of a style. I think the manner of his writing, is the chief reason why he has less than his share of fame with the public generally. We owe the discovery of all the great lakes to his expedition, and in fact it is still possible that when he struck upon lake Tanganyika, he was looking at the most distant reservoir of the Nile.

The first grand difficulty in the way of African travels is expressed by a few items in Burton's outfit. The object was to convey two Englishmen five or six hundred miles and back. To do this about fifty porters and half as many donkeys were required, and their chief business was to carry the money. This, moreover, was an insufficient supply. In Europe we put a year's income into our waistcoat pocket, and never think of money and luggage except as totally

different things. Not long ago, however, a journey through France could not be undertaken without a heavy bag of five franc silver pieces, and this, though hardly an impediment, was a real trouble and inconvenience. But if we only had to carry our funds in copper, so that a thousand francs might weigh perhaps half a ton, there would be an end at once to our summer wanderings, and the whole character of our foreign intercourse would be changed. The difference between rude barter and European finance is soon comprehended when we go among naked savages, who have no acquisitive passions except the love of food and the love of finery, and who reckon in cows and necklaces instead of pounds and pence. And having got your asses and your porters fairly on the road, the first are pretty sure to die, and the second to run away and leave you, which is the next grand difficulty. Neither horses, camels, asses, mules, nor oxen appear suitable as beasts of burden in equatorial Africa; and the elephant, who finds his native home there, has not been domesticated by the natives. Probably the greatest practical help at present, both to civilisation and discovery, in those parts, would be the establishment of an elephant hunt, not for slaughter but for capture, and the training of these great beasts somewhere on the Zanzibar coast. If they could be made available as means of transport, the advance would be as great as from turnpike roads to railways.

The hostility of the natives is often great, but the traveller's dependence on them for food in exchange for his bulky money is the most serious difficulty of all.

The climate is trying, but its dangers are doubled by the fatigue of walking and the impossibility of carrying a sufficient quantity of things necessary to health. It seems certain that fifty riflemen might march where they pleased, and overturn a kingdom a week, if they could go on the backs of elephants, with proper supplies.

Burton and Speke pushed on through all obstacles, exploring the country between 5° and 7° south latitude, and as far as 30° east; crossed the range of mountains which culminates further north in the snowy peaks; found themselves on a high table-land, highest about midway between Zanzibar and Lake Tanganyika, and generally between three and four thousand feet above the sea, and descended its gradual slope westward till they reached the shores of the lake. They arrived there, ill, and with an almost blinding affection of the eyes, but in great excitement; for there was a report of a large river running northward out of the northern end of the lake, and they were filled with the idea that this must be the Nile itself. A strange fatality, such as to some extent followed both Speke and Baker afterwards, compelled them after all to leave this question in doubt. They got within twenty miles of this river, and there, from the exhaustion of supplies and the opposition of the natives, they found it impossible to go a step further. Their hopes in the meantime had been dashed down by positive statements that the river ran into the lake instead of out of it. Nothing seems more difficult than to understand what an African means when he tells you how a river runs.

Captain Burton's disappointment must have been great. It was made still greater by the discovery of the Victoria Nyanza by Captain Speke alone, who on the return journey struck northwards, and came first upon this inland sea. He saw only the southern end of it at that time, but in his own mind he at once determined it to be the source of the Nile. An unfortunate rivalry, the painful nature of which is manifest in Captain Burton's volumes, was the result. Burton was more generous than Speke, for he did something like justice to his colleague's achievements; but the quarrel between them is one of the least agreeable parts of the whole story, and the manner in which it was brought to a close at

last, by Captain Speke's sudden and melancholy death, only adds to the regret with which it must be regarded.

To determine the levels of the country they passed through was of course one of the objects of the expedition, and a great deal was done towards it. I cannot help noticing, however, what I must call the mistake of travellers and geographers generally, in giving the results of first measurements of height as if they were known to a foot, when they are only known really within one or two hundred yards; for this is the case with all heights far from the sea, till they have been corrected by observations, not easily made. The thing determined on the spot by the best barometer or boiling-point thermometer is merely the atmospheric pressure of the moment at the point of observation, and this determines only that the height lies between a certain maximum and minimum, having a range of many hundred feet, unless the sea level or some point, the elevation of which is positively known, should be close at hand. If it were the custom to say, not that such a place was found to be one thousand two hundred and thirty-four feet above the sea, but that the atmospheric pressure was so and so, indicating a height of about so much, it would prevent many errors, and give a much more correct idea of the state of our knowledge. Even the use of round numbers only would be some improvement.

The levels in Eastern Africa are of immense importance in suggesting what is worth attempting by future explorers, but the only thing certain about those marked on our newest maps, Mr. Stanford's, for example, is that they are necessarily wrong, and may be very largely so. Burton made Lake Tanganyika about one thousand eight hundred and forty feet above the sea. It may be much less, or much greater. Speke's first observation gave the Victoria Lake an elevation of three thousand seven hundred feet. On his second journey he found this several hundred feet too much, but Baker

again made the first measurement too little. On the Nile itself, there is almost equal uncertainty. Even the height of Khartoum is unsettled, and Gondokoro has been made as much as two thousand and as little as one thousand two hundred and fifty feet above the sea. Mr. Petherick's last measurement is one thousand four hundred and twenty eight feet. Sir Samuel Baker makes the Albert Lake two thousand seven hundred and twenty feet, which is very likely an enormous error. As the case stands, it is just possible that lake Tanganyika may discharge itself into the Albert Nyanza, though to do this according to the maps would be to run three hundred yards up hill. On the other hand its waters may flow southward, or it may be a lake without an outlet, like the Caspian Sea. Its size and shape are also in part conjectural, the southern half, though laid down in the maps, not having been so much as seen. There seems no doubt, however, that it must be three hundred miles long, and thirty or forty broad on an average, covering some ten thousand square miles.

Burton gives an elaborate account of the country he passed through; of its inhabitants, its products, and its climate. There is hardly any point of interest on which his book does not contain more or less information, generally of a satisfactory kind. Among incidental matters he speaks of villages built on piles by the banks of the Rufigi river, the object of the natives being to provide against sudden inundations, and to keep clear of the crocodiles. The subject of lake dwellings may have fresh light thrown upon it by further inquiry here. These people are utterly barbaric, but they are in the iron period, and have been so for an unknown length of time. Ore, of a sort easily smelted, is found on the surface. They dig little furnaces in the ground, worked with hand-bellows of the rudest kind, with charcoal for fuel, and they forge the metal with stone hammers on stone anvils.

After the death of Speke, Captain Burton published a small volume called the *Nile Basin*, containing a paper by himself and another by Mr. McQueen. In the latter a curious error, made once before about the discharge of rivers, is repeated.²⁴ The volume discharged is said to be as the square of the velocity, which is equivalent to saying that twice one cubic yard a minute is four cubic yards. The arithmetic of most geographical writers cannot safely be taken for granted.

Burton's great expedition was followed in 1860-63 by the still more famous journey of Captains Speke and Grant, the records of which are given in Speke's thick book, and the more modest volume of his companion.

There is a difficulty in speaking fairly of what Captain Speke has written, without seeming to disparage what he has done. He was one of the bravest, most enterprising, and most successful of English travellers. He had a real geographical instinct, and an unbounded energy. His first discovery and subsequent exploration of the Victoria Lake are masterly examples of foresight and decision. He grasped his own plans as he did his rifle, with a clear eye and a steady hand, and his contributions to geographical knowledge were of a very high order. But his account of his journey is certainly not the kind of book one would like to have as the lasting record of so great a discovery. It is moderately well written, but in a sporting tone, that lowers it at once into the ranks of inferior literature, with an extreme egotism, a want of generosity, a narrow ambition, and a common-place level of sentiment that disappoint our natural desire for the worthy treatment of a great theme.

An Englishman who goes where none but savages have been before him, and gives his countrymen the first account of a new world, lies under a grave responsibility. To the

²⁴ Page 154.

savages themselves he is the first revealer of what civilisation and Christianity may be. He stamps a new idea on their memories. He ought to feel that its good or evil influence, through he knows not how many future generations, depends upon himself. The honour of his country and his faith are utterly at his mercy, and what he appears to these wild races is what they will suppose an Englishman to be. To his readers here, his travels and not himself are the proper objects of interest, and the beginning of an intercourse with new nations, especially with horribly degraded ones, is a matter of serious concern. A successful explorer should think of the feelings of those who are less fortunate, and should remember that the worst title to human fame is the effort to claim it.

There are passages in Captain Speke's book which it is impossible to read without feeling that all these considerations must at times have been forgotten. His account of his residence in Uganda is not consistent with the state of moral feeling we wish to find; his behaviour to Captain Grant, though Grant would not blame him, does not satisfy the reader. Baker managed to take his wife forward when she was equally helpless. His treatment of Petherick is most unjustifiable. Charges made in England against a man who must answer from Gondokoro should be substantiated when they are made. His assumption of a contempt for trade among the natives was not only great folly but extremely bad policy. It is nonsense to carry the airs of Hyde Park among a set of savages, who only know two ways of living, one by work and the other by theft, and who infinitely prefer the latter; who have not yet learned to dress and be decent; who will sell you a wife for ten cows, rob you if they dare, murder you if they can, and perhaps as soon eat you as bury you. If any good is to be done with them, it will be done, depend upon it, by traders; and the very first effort

should be to give them as high a notion of honourable commerce as their poor wits are able to receive.

Captain Speke's extreme ambition to be acknowledged as the discoverer of the source of the Nile shows itself in every part of the book. His jealousy of any interference with his fame seemed to extend even to natural objects. To shut out any possible rivalry between Lake Tanganyika and his Nyanza, he put round the northern end of the former a crescent of mountains which he no doubt thought must be there, but which are not considered authentic, and have been removed from the maps. But the most amusing instance was his jealousy of the Great Albert Lake, since discovered by Sir Samuel Baker.

When Speke found his Nile, known now as the Somerset river, flowing out of the Victoria Nyanza, he heard reports which satisfied him that there was another piece of water to the north-west, through which his river must pass before it became the Bahr-el-Abiad. The Luta Nzige, or Dead Locust, was the name given by the natives to this unknown lake, and it seems to have filled Speke's mind with uneasiness from the first. He calls it the "Little" Luta Nzige, and does so invariably, on all occasions, never omitting the diminutive prefix, and never giving any reason for it. He always speaks of this lake carelessly, as of a mere backwater to his river, but you feel that he is haunted by it, and worried by it, and trying always to lessen its importance. He felt no doubt that it put his own exclusive fame in jeopardy; that it might prove, as it has proved, a rival to his Nyanza. He marked the position of this lake, and of the influx and efflux of the river, with great accuracy, but he made it comparatively insignificant in size. His treatment of the matter illustrates in an almost equal degree the keenness of his geographical instinct and the narrowness of his ambition.

Captain Grant's account of the journey is written in a different spirit. As a narrative it is rather tame, and in general it goes of course over the ground Speke's book had occupied before. It shows an affection for Speke himself which is very pleasant to see, and it supplies many interesting details. There are two passages of considerable value in relation to the hydrography of the district.

The Victoria lake stretches northward about two hundred miles, from 3° south to the equator.

Its northern shore has been traced for above a hundred miles, from 32° to near 34° east. Captain Speke believed it to extend another hundred miles eastward, where he places another reported lake, of no great size, connected by a strait with the Victoria, but itself the source of the Asua river, which joins the White Nile south of Gondokoro. He thus gives the Victoria lake an extension of about two hundred miles each way, but he narrows it at the eastern end, making the whole area about twenty thousand square miles. More than half of it, however, is only known by report.

Now, according to Speke's account, the lake rises and falls considerably at different seasons. A rise of four feet would account for the phenomena noticed, and as this is also Baker's estimate of a similar rise and fall in the Albert lake, we may suppose it to be probable. The question then occurs, Where does the water come from, and where does it go to? As to the supply, Grant made observations, through an entire year, of the rainfall in the neighbourhood, and he found the annual total to be forty-nine inches. It fell in frequent showers almost all the year round; but the heavy falls were near the equinoxes, when about fifteen inches fell in two months, twice a year. The swelling of the lake could arise only from this equinoctial fall of fifteen inches, and if the water rose four feet it would require the whole rainfall on about three times the area of the lake to supply the quantity.

But nothing like the whole rainfall could ever reach the lake. At our own waterworks we impound about three-fourths of the rainfall in their immediate neighbourhood. This is in a cool climate, where the ground is seldom parched, the sun rarely scorching, the vegetation scanty, and the area of drainage close at hand. The supply of the Victoria Nyanza comes from a country exposed almost every day to torrid sunshine between the storms, where sandstone is abundant, vegetation most luxuriant, much of the area one hundred miles or more from the lake, with the water coming generally through rush drains as they are called, where the streams are broad and shallow, and very slow. It is not easy to believe that half the rainfall could reach the lake under these circumstances; and if we suppose it half, the area needed for the supply will be six times that of the lake itself, or one hundred and twenty thousand square miles. Nor is this all, for in the meantime there is the Somerset river to feed, and the evaporation from the lake itself to allow for.

Now, the annual evaporation from surfaces of water in our own neighbourhood has been found generally to range between twenty and thirty inches.²⁵ It is sometimes an inch a week in summer. In Lower Egypt, M. Linant says it has been ascertained by careful observation, to average about thirty-four inches a year.²⁶

It seems inevitable that it should be still greater from the surface of the Victoria, where the sun is vertical twice a year, and where the barometric pressure is reduced three or four inches by the elevation above the sea. The evaporation from the Red Sea has been reckoned at about seven feet per annum. We have, therefore, still further to increase the drainage area to at least one hundred and fifty thousand square miles; and a glance at Speke's map will show that

²⁵ Mr. Watson's tables.

²⁶ *Memoire sur le lac Moeris*, Alexandrie, 1843, p. 15.

nothing like this is available upon it. The lake receives nothing from the north, the drainage there being the other way. Excluding the northern shore, its coast line may be about five hundred miles according to Speke; to get an area of one hundred and fifty thousand square miles, therefore, the drainage must extend about three hundred miles back from the coast line; to the west, however, it can rarely exceed one hundred miles in breadth; to the south-west, hardly fifty miles; on the south side it is probably not one hundred and fifty; and on the east, two hundred miles brings us to the snowy mountains.

But in fact we shall have to take the rate of evaporation at something very much greater when, having got the water into the lake, we consider how to get it out again.

The flood of one equinox must subside during the four months between it and the next wet season, and it can only run down the Somerset river or rise up into the air. In one of the passages alluded to above, Captain Grant gives us data for calculating the volume of the Somerset; he describes one part of it, at flood time, as two hundred yards wide, with a current of only half a mile an hour, and shallower than at another part where it was eighteen feet deep in the middle, and nine near the sides.²⁷ We may take four yards as an average depth. Such a river, flowing out of a lake of twenty thousand square miles area, would only reduce its level about two inches in four months; nearly the whole of the four foot increase, therefore, must pass off in vapour, or about a foot in a month; but with such an evaporation going on, the supply required to raise the waters would be half as much again.

I make these calculations, not with any idea that they represent the facts of the case (which they certainly cannot do), but to show what large improbabilities are involved in

the present mapping of the district, and what a field there is for further discovery. The Victoria lake may prove to be nothing like so large as is supposed; its rise and fall may be exaggerated, or it may draw supplies from a greater distance than we know of at present.

The second passage referred to²⁸ in Grant's book relates to the size of the Kitangulé river, which enters the lake about the middle of its western side, comes from a mountainous district where there are peaks estimated at ten thousand feet high, and brings to the lake by far the largest body of water met with by the travellers. This river, as well as the little Luta Nzige, rather troubled Captain Speke, and he persuaded himself that it was much smaller than his Nile. Grant, however, makes its volume six times as great. He says he found it eighty yards wide, ten yards deep, and with a current of three miles an hour.²⁹ It would require for its supply the rainfall of a larger district than Speke's map allows; and its volume would be more than three times Mr. Petherick's estimate of the White Nile below Gondokoro.

In 1864 Captain Speke published a second volume,—*What led to the Discovery of the Source of the Nile*,—but as it shows the worst side of his character, and is full of bitterness towards Captain Burton, one can only wish it had not been written.

I am here led to Sir Samuel Baker's well-known work, which most of us have read so lately. His discovery of the Albert Nyanza confirmed Captain Speke's observations, but greatly modified their results. The Somerset river flows into this lake near its northern end, and the White Nile

²⁸ P. 194.

²⁹ Estimates of the volume of rivers, however, require many precautions. Near their mouths, there may be a rapid current at the surface, but almost still water below.

flows out of it at about twenty miles from the mouth of the Somerset; and the size of the two rivers at these points is probably not very different; but the supply brought by the Somerset accounts in a very trifling degree for the flood of waters gathered together in the Albert lake, to which, indeed, it appears to be less important as a feeder than the Kitangulé river is to the Victoria Nyanza. The area of the Albert Nyanza is perhaps as great as that of the Victoria; it also rises and falls several feet, according to Baker's observations; and a vast drainage, and perhaps many rivers larger than that of Speke, must supply its depths. The possibility that Lake Tanganyika may be connected with it is now one of the exciting points in the inquiry, for it would carry the Nile sources five hundred miles further south and change the name of their discoverer.

Baker's experience on the Albert lake was almost exactly that of Burton and Speke on Lake Tanganyika. Like them he and his wife reached the shore in extreme ill-health, saw only the northern part of the lake, and found it impossible to get to either end. He gives a striking account of his great discovery. He reached the edge of a line of cliffs on a brilliant morning, and found the lake at his feet, five hundred yards below. It would be something like standing on the top of Penmanmawr and looking down. Opposite, fifty or sixty miles off across the water, blue mountains rose seven thousand feet above the horizon, where no shore line was visible. To the left, southward, it was boundless sea.

"It is impossible," he writes, "to describe the triumph of that moment. Here was the reward for all our labour; for the years of tenacity with which we had toiled through Africa. England had won the sources of the Nile!"

That was a feeling worthy of the occasion, and it is not marred by what follows.

The absence of undue self-assertion, and the general desire to be just to others, especially to Captain Speke, are among the most agreeable characteristics of Baker's volumes. He insists a little too much, however, on the discovery of the actual sources. He has discovered the final reservoir out of which the White Nile flows, but the supply of the reservoir itself has yet to be determined, and it is not very likely that either the Victoria or Albert lake will ultimately appear on our maps as the remotest waters of the Egyptian river.

Baker descended the cliffs to a fishing village called Vacovia, a curious name, suggesting inquiry about its origin. The width of the lake at this point seems a little doubtful. Baker, looking from the top of the cliff, could not see the base of the mountains, but supposed it to be only just below the horizon. If so, seen from a height of five hundred yards, they would be fifty or sixty miles off. From some position, near the shore apparently, he says he saw with a telescope two white torrents coming down the mountain sides. If these were visible from the shore they must have been some two thousand feet above the base of the mountains, and torrents at that height, large enough to be seen even with a telescope at that distance, must be something remarkable. But the details here are rather confusing, for Baker says afterwards that the mountains could not always be seen from the surface of the lake. If they were down to the horizon here, while seven thousand feet of their height was visible from the top of the cliffs, their distance would have been at least one hundred miles, instead of fifty. Baker, however, might still be right as to the width of the lake; the highest parts of the blue mountains might belong to ranges far beyond it, which would disappear behind nearer and lower heights as he descended the cliffs.

The rule for reckoning the distance from which an object

of a given height can be seen on the earth's spherical surface does not seem to be very well known to general observers, and to have it repeated therefore may help to keep some of us out of Professor de Morgan's *Budget of Paradoxes*. A curious mistake about it appeared not long since, even in the *Geographical Society's Journal*, where a well-known writer on the subject of African travels reckons, that if a mountain five thousand feet high can be seen at a distance of eighty-four miles, which is nearly right, a mountain of twenty thousand feet can be seen at three hundred and sixteen miles, which is immensely wrong.³⁰ The rule is this,—the diameter of the earth multiplied by the height of the object, plus the square of that height, is equal to the square of the greatest distance at which the top of the object could be seen from the sea level, supposing there were no atmosphere. Practically, the square of the height has no value, and atmospheric refraction adds about ten per cent. to the distance. Multiply the earth's diameter by the height of the object, therefore; extract the square root of the product, add one-tenth to it for refraction, and you have the extreme distance at which the top of the object will be visible from the sea-level. Inversely, the square of any distance, divided by the earth's diameter, gives the smallest height that at that distance could be seen. As we never look really from the sea-level, the calculation must be made from the spectator's horizon, and not from his actual place; the real distance of his horizon being ascertained by the same process. A man six feet high, standing at the edge of the tide, will have his horizon about three miles distant, because an object six feet high can be just seen at that distance, from the surface of the sea. At a height of twenty-four feet the horizon will be about six miles off; at one hundred feet, about twelve miles. The heights visible are as the squares of the distances; the distances as the square roots of the heights, nearly.

³⁰ *Journal Royal Geographical Society*, 1860, p. 134.

feelings under it, is singularly affecting, and is very life-like ; nowhere more so, perhaps, than in his confessed longing for an English beef-steak and pale ale before he died. He starts from Gondokoro with high praise of donkeys as beasts of burden in those difficult lands, especially for the advantage they possess in having tails at one end and long ears at the other. In crossing deep ravines and rocky gullies you can let them down by the tails and pull them up by the ears, while a camel, left necessarily to itself, may be rolling like an avalanche, and either breaking its long neck or knocking its pack to pieces. But he found, as others have done, that neither donkeys nor camels could stand the journey.

As I am speaking of the literature of the subject and as Sir Samuel can well afford to be criticised, I shall add, that his book, in spite of many passages of good writing, contains some excellent bad English, of several amusing kinds. Here are a few examples :—

He tells us in his Introduction that America has become a new era in the history of the human race ; which is news at all events to American grammarians ; and in the same page we read of regions hitherto lain hidden, perhaps for the benefit of English ones. Certain countries are to be “the pulses of civilisation.” “No portion of the Nile is so great as ——” one of its portions.

“They did not see the Nile again until they arrived in north latitude $3^{\circ} 32'$, which was then flowing from the W.S.W.” This surely was the latitude of latitudes.³¹

“Richarn was a fair sportsman, and being *an entirely different race* to the Arabs, he kept himself,” &c.³²

“Believing that the fault must *lay* in the boy, I told him I would inquire.”³³

“If any complaint were made, and Saat was called as a witness, such was Saat’s proudest moment.”³⁴

³¹ Vol. i., p. 102.

³² Page 117.

³³ Page 119.

³⁴ Page 121.

“A string of fifty little berrets *which* I had brought into the country for the first time, and *were* accordingly extremely valuable.”³⁵ But Sir Samuel is not the first man who has succumbed to “whiches.”

“Their hair,” he says of some pretty savages, “was worn short, like all the women of the country.”³⁶ But the women were five feet seven.

These are from the first volume. Here is a sentence from the second,—

“There is only one variety of Rhinoceros that I have met with in the portions of Africa that I have visited; this is the two-horned, a very exact sketch of which I made of the head of one that I cut off after I had shot it.”³⁷

In another passage he describes Lady Baker as³⁸ “dressing her hair in the door-way, which, being very long and blonde,” excited the wonder of the natives; as well it might.

A great discoverer is not bound to be particular, but a good book, after all, is worth a little rubbing up.

Mr. Petherick, in the mean time, has explored a considerable district west of the Nile, between Gondokoro and the Albert lake. His volume, *Egypt, the Soudan, and Central Africa*, published in 1861, gives an account of fifteen years' experience in African travel; and his map in the *Geographical Society's Journal*, 1865, shows the extent of his discoveries. His measurements of heights, from Khartoum to Gondokoro, are probably the most accurate hitherto made. If so, they point to large errors in the estimates of Speke and Baker. In addition, Mr. Petherick has measured the volumes of water discharged by the White Nile, the Gazelle, and the Sobat; with the very important result of finding the volume of the Sobat as great as that coming from the Albert lake. Now the Sobat has been very much neglected. It joins

³⁵ Vol. i., page 214.

³⁶ Page 216.

³⁷ Vol. ii., p. 275.

³⁸ Vol. ii., p. 46.

the White Nile in north latitude 9° , coming from the east. It has not been explored for more than two hundred miles, and its sources are unknown. As the stream is perennial, it must come from the rainy zone, that is, from within 3° of the equator, or else from some large reservoir not yet heard of. If length is a test of precedence in the affairs of rivers, it may prove a formidable rival even to Sir Samuel Baker's Nile, for its source may possibly be among the snowy mountains; and in this direction another great discovery may lie in store for some one hereafter.

The names of Mr. Cooley and Mr. McQueen must not be omitted from the list of contributors to the Nile literature. Their writings on the subject have often been of great importance. Numbers of travellers also have visited and described the Nile below Khartoum, and their works are, perhaps of equal interest with the accounts of more remote discovery. Mr. Melly's volumes, and the Paper on the Voyage of the Dutch Ladies, in a recent number of our Historic Society's Proceedings, are among the most interesting. The map just published by Mr. Stanford is part of the best literature of the subject. It is only a pity that he has taken too much for granted as to the size and shapes of the lakes, and that he has put in heights, never likely to be confirmed, as if they were correctly measured.

But this map, recording the results of a few years' active explorations, must fill us with astonishment. Here are lakes half as large as England, at the foot of mountains loftier than the Alps, as near to Zanzibar as Perthshire is to London, with no parching desert, no uninhabited waste between; and yet lakes and mountains alike remained unheard of, except in what seemed to be floating fables, through all the centuries of modern civilisation. To account for this seems almost another mystery of the Nile. We can only exclaim, "Turks!" with Mr. Werne. The

gates of eastern Africa have been in their hands ; and the Mohammedan world is like its own pale symbol—a crescent that never grows.

The climate of the lake district seems in many places healthy ; the heat, such as Europeans can bear. Rain falls all the year round in frequent showers, heaviest about the equinoxes, with sunshine generally between them. The vegetation is wonderful ; grass twelve feet high ; grain ten feet high ; trees, among the largest in the world. Captain Grant brought home specimens of seven hundred and fifty species of plants, about ten per cent. being new ; coffee, cotton, India-rubber, and many hard-wood timber trees are among them.

There are several kinds of grain, and the natives have somehow learned the art of brewing. They make a fermented wort, which will not keep many days, but is strong enough to be intoxicating. Pombe is the name of this home-brewed beer ; and when a man gets drunk and stays at home, as he usually does, to do it thoroughly, he is said to be sitting upon Pombe. He sits upon Pombe as often as convenient, regarding intoxication as one of the legitimate pleasures of life. This, perhaps, must be taken as some approach to civilisation.

Animals are abundant, and they include the elephant, buffalo, rhinoceros, hippopotamus, giraffe, zebra, lion, wild boar, hyena, and numberless antelopes. Of these the giraffe is the tallest, the African elephant, rhinoceros, and hippopotamus are the bulkiest, of existing quadrupeds. Size, so predominant a feature in all the natural phenomena of the great Continent, seems to produce a grotesque emulation in the minds of the inhabitants, who aspire after it in barbarous ways. Bruce, speaking of the fat Queens of Sennaar, says, “ One of these seemed to me, next to the elephant and rhinoceros, to be the largest living creature I

had met with." Captain Speke brought home the dimensions of a Lunar lady, built on the same scale, which are equally ludicrous and disgusting.

The ostrich, guinea-fowl, pigeon, heron, adjutant, hawk, crane and vulture are among the larger birds; snakes do not seem very numerous, but the insects are swarming; the tsetse is among them, and another fly, the donderobo, has been described as being fatal to such domestic animals as the tsetse spares.³⁹ The rocks are chiefly primitive; iron and copper are found. Gold has been said to occur on Kilimanjaro. If it should ever be found abundantly there, a new race may settle rapidly on these Mountains of the Moon.

This indeed suggests the darkest part of the whole picture. The present races inhabiting those equatorial regions are brutal, vicious and wretched; and, such small intercourse as they have with the outer world being chiefly through the slave trade, they are not likely to be the better for it. It is worth remarking that in the *Periplus of the Erythrean Sea*, written some eighteen centuries ago, knives, hatchets, brass and copper for bracelets, and coloured cloths are mentioned as the chief articles sent from Egypt to the east coast of Africa, in exchange for ivory.⁴⁰

As to the Mountains of the Moon, the facts are these:—Ptolemy, in the second century, believed that a chain of mountains bearing this name ran east and west, about 12° south of the equator, and near the sources of the Nile; fifteen hundred years afterwards nobody had ever found these mountains, but it came to be understood that in the interior of Africa, west of the Zanzibar coast, there was a large district called Monomoegi, or something like it, and that the name signified the country of the Moon. Our latest travellers have discovered that there is such a country, near the borders

³⁹ *Journal R. G. S.*, vol. xxxiv., p. 5.

⁴⁰ See Vincent's *Periplus*, vol. i., p. 103, *et seq.*

of the three great lakes, the Victoria, Albert, and Tanganyika, and they give its name with greater accuracy as Unyamuezi, which, in the language of the present inhabitants, means the Land of the Moon. The country is mountainous, and forms part of a line of heights which stretch from east to west, for many hundred miles, a little south of the equator. In this latitude we find the snowy peaks, about two hundred miles from the coast; the mountains of Unyamuezi, three hundred miles west of these; two hundred miles further west, the M'fumbiro cones, reckoned at ten thousand feet high by Speke; and again, after another two hundred miles, the mountains seen by Baker across the Albert Nyanza.

The great Abyssinian chain, coming from north to south, appears to turn westward, or else to widen itself enormously, at its southern end.

Ptolemy's Mountains of the Moon, therefore, appear not to be fabulous, although he placed them too far south; and he must have got their name through some real knowledge of the country. It would seem to follow that this district, since his time, has been inhabited by the same race, speaking the same language. The natives can give no reason for the name; but that is only evidence of its antiquity. Nothing to account for its origin has been noticed in the customs or traditions of the people, or in the nature of their country. They worship nothing at all, and are not therefore moon worshippers; and any interest they may show in moonlight nights is not peculiar to themselves. Their persistent barbarism for an unknown length of time is indicated by the absence of any ruins of former greatness. The only link connecting them with the past is the one name, Unyamuezi. But this link is perfect. It seems impossible to doubt that the name has adhered to the country since the time of Ptolemy. A land of the Moon, so nearly where he placed the Mountains of the Moon, cannot be an accidental coinci-

dence ; and as the name is not foreign, but belongs to the present living language, the inference that the inhabitants have remained there for nearly twenty centuries is almost unavoidable. Their history is perhaps wrapped up in the unknown origin of the name.

It is a curious circumstance that although Marco Polo mentioned the Island of Madagascar by the name of Magaster, Covilham, two centuries later, immediately after its actual discovery, wrote of it as the Island of the Moon.⁴¹ The name occurs also in Al Edrisi, and is still preserved in the Comoro Islands, a group between Madagascar and the African coast, exactly in the latitude of Ptolemy's Mountains, — "*Komr*," or "*Kamar*," being Arabic for Moon. The name of the Queen of Night has clearly been associated in some special manner with the geography of eastern tropical Africa.

On the whole, the literature of Nile expeditions is much less remarkable than the discoveries recorded by it, and, unless Bruce is to be excepted, it does not include any single work of really first-rate excellence ; but it brings together the thoughts and observations of a great number of energetic and courageous men, engaged at different periods in working out the same problem, and it gives, from many different points of view, an account of one of the most interesting portions of the world we live in. A traveller to the tropics may gather from it everything that he has need to know before-hand, and an Englishman at home will find in these books much that is valuable and interesting, to whatever branch of knowledge he may devote himself. At the same time it is a pity, certainly, that travellers generally are not better writers. There are splendid subjects for books of world-wide and permanent interest, when men of real literary power undertake the

⁴¹ Vincent. vol. i., pp. 195, 214, 224.

journeys now usually left to the physical energy of sportsmen, or the practical skill of traders. The chivalry of our day may recollect that the old Nile has still a final crown waiting for a final conqueror; and that if it should be won by a man whose powers are equal to his opportunity, his story may supersede all others on the subject, and be recognised as the real epic of the Nile.

EIGHTH ORDINARY MEETING.

ROYAL INSTITUTION, February 4th, 1867.

THE REV. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

Previous to this meeting,

AN EXTRAORDINARY MEETING

was held, according to notice, to consider, for the first time, the adoption of the following additional Laws to the Society's code, as recommended by the Council:—

CORRESPONDING MEMBERS.

1. Any person not residing within ten miles of Liverpool, and likely to further the objects of the Society, may be proposed as a Corresponding Member, on the recommendation of the Council.

2. The number of Corresponding Members shall be limited to thirty-five. They shall be elected in the same manner as Honorary Members, but only for the term of ten years.

3. Corresponding Members shall not be subject to any of the expenses of the Society, nor have any share in its property, nor vote thereupon.

The following alteration was also considered for the first time.

To insert, in the first Paragraph of the Society's Laws, on page 3, and entitled "Constitution of the Society," the words "*Corresponding Members*," immediately after the words "*Honorary Members*."

At the ORDINARY MEETING which followed, Mr. E. Burden and Mr. Joseph F. Robinson were balloted for, and duly elected members of the Society.

Mr. Higginson then alluded to the bony rings occupying the margins of the orbits in the skeleton of the eagle owl, shown by Mr. Moore at the last meeting. Mr. Higginson exhibited the eyeballs of the common owl, filled with wax, so as to show their form, and the place of the bony ring as an integral portion of the globe. Some other eyes, filled with plaster of Paris, were exhibited by Mr. Higginson, and the interesting structure of the nictitating membrane, and its muscles, shown on an enlarged model.

Mr. T. J. Moore exhibited a cleaned specimen of great beauty of the Venus's flower basket (*Euplectella Aspergillum*), lately added to the two specimens in the natural uncleaned state in the Derby Museum, and which were exhibited at a recent meeting of this society.

Mr. M'Mullen, M.A., of Huyton, then read a paper "On the Cosmogony," which was followed by a long and animated discussion, in which Drs. Ginsburg, Inman, and Birkenhead, the Revds. H. H. Higgins and Kennedy Moore, and others took part.

NINTH ORDINARY MEETING,

ROYAL INSTITUTION, February 18th, 1867.

J. BIRKBECK NEVINS, M.D., VICE-PRESIDENT,
in the Chair.

AN EXTRAORDINARY MEETING

was again held, before the above, when it was proposed, and carried unanimously, that the new Laws relating to Corresponding Members, agreed to at the last Extraordinary Meeting, should be confirmed and adopted.

At the ORDINARY MEETING which followed, the Rev. H. S. Maye, B.A., Rev. R. J. Fairclough, and Dr. Hallett were balloted for, and duly elected members of the Society.

The Rev. H. H. Higgins exhibited two specimens of a rare shell, *Ficus pellicudus* of Deshayes, from Rosemary Island, Australia. These specimens were lately presented to the Derby Museum by the Rev. E. R. Beadle, of Philadelphia. Mr. Higgins also exhibited a rare coral, *Mussa recta*, lately acquired by the museum.

Mr. T. J. MOORE read extracts from letters lately received, viz., from Mr. J. Yate Johnson, dated Algiers, Feb. 1, 1867, in which the writer compared the marine fauna of the Algerian coast with that of Madeira; and from Mr. R. B. N. Walker, dated Gaboon, Nov. 17, 1866, in which the following remarks occur:—

“I am firmly convinced that the Ogowe is a most important river, having a course of certainly not less than a

thousand miles, probably much more; and I venture to hazard the assertion that its source must be looked for in Sir S. Baker's Luta Nzige, or Albert Nyanza, and though I may not be so fortunate as to be able to prove this, future travellers, I confidently assert, will find that my belief is well founded.

"I differ entirely with Du Chaillu in his statement to the British Association that Equatorial Africa is covered by a belt of dense forest; on the contrary, the Ogowe, at two hundred or two hundred and fifty miles from its mouth, runs through prairie land and grass-covered mountains, extending as far as the knowledge of the natives goes; they know not where the forest is again found, but it is at an immense distance in the interior, as I have questioned slaves from all parts, some of them apparently from the shores of the Luta Nzige, or at least to whom the existence of that magnificent lake is known."

Mr. Walker had been unable to resume his explorations of the interior of that part of Africa, but was exceedingly anxious to do so as soon as circumstances would permit. Much interest in his behalf had been displayed by the French admiral Vicomte A. de Langle, and by the American missionaries and others.

Mr. MOORE exhibited the following additions, just presented to the Derby Museum by Captain Alexander Browne, s. s. "Agia Sofia," an associate of the society, by whom they were obtained during his last voyage to the Mediterranean, viz.— Small samples of breccia, containing mammalian bones and broken flints, from the entrance of the Dog river, near the sculptured rocks in the vicinity of Beyrout; and eighteen fragments of terra cotta, dug up by Captain Browne about two miles from Larnaka, in the island of Cyprus. They were from a limited district, which presented the appearances of having anciently contained a terra cotta

manufactory, which had been suddenly destroyed. The British consul supposed the age of at least some of them might be 200 B. C.

At the request of the chairman, Mr. H. ECROYD SMITH made the following remarks on these terra cottas:—He considered them to be of various dates, and to some extent representing several epochs in the history of the “fortunate isle,” as it was often termed, which, first colonised by the Phœnicians, was successively occupied by the Persians, Greeks, Egyptians, and Romans. Hence the pottery is of a mixed character, several examples, including two male heads, being probably Phœnician, others inferior Greek, Egypto-Phœnician, and Greco-Roman. Several of the figures are hollow almost throughout, and apparently rude and rejected models of ’prentice hands. In several specimens, a basis or central nucleus appears in the fractured necks, harder than, and no doubt for strengthening, the outer coating; but this was not an uncommon mode of manipulation in the early potteries.

A paper was then read by Mr. Edward Jones, B.A., on “English Orthography, Past, Present and Future.”

TENTH ORDINARY MEETING,

ROYAL INSTITUTION, March 4th, 1867.

J. BIRKBECK NEVINS, M.D., VICE-PRESIDENT,
in the Chair.

A general feeling being expressed that the Society's meetings should begin at an earlier hour, it was resolved that an Extraordinary Meeting should be called, to consider the subject.

Mr. Joseph Hewitson and Mr. James W. Topham were balloted for, and duly elected members of the Society.

The Rev. H. H. Higgins exhibited, and made some remarks upon, a small series of sand shells from the desert of Sinai, lately presented to the Derby Museum by the Rev. E. R. Beadle, of Philadelphia, U.S.A.

Mr. T. J. Moore exhibited a pair of gigantic crabs (*Macrocheira Kaempferi*), from the Japanese sea, lately acquired from the widow of Dr. Siebold, the discoverer of this remarkable species. Mr. Moore also exhibited a *Hippocampus*, in spirit, and a drawing of the creature in its living state, made by Captain Mortimer, of the ship "America," Associate of the Society, who kept the specimen alive for many days aboard ship; also a fine series of sea urchins, of the genera *Echinarachnius* and *Mellita*, and a string of egg capsules of the univalve mollusc *Busycon canaliculatum*; all recently collected in a voyage from Savannah, and presented to the Museum, with many other specimens, by Captain Mortimer.

The following paper was then read:—

CHEMISTRY IN RELATION TO OTHER SCIENCES.

By E. DAVIES, F. C. S.

ONE of the most striking results of modern research is the removal of the definite landmarks which formerly separated one department of study from others. The grand generalisation which reduces the manifold forces existing in nature to one Protean principle, connects all branches of science by interpenetrating bonds. One natural science cannot be thoroughly studied by itself, and the student, whilst devoting his mind to one science, or even section of a science, must have a more than superficial acquaintance with the whole face of nature.

Mankind are awakening to the truth of this fact, and in the rebellion against the limited number of subjects, a knowledge of which was supposed to constitute education, an imperative demand is made for instruction in the natural sciences.

My object is to show the importance of Chemistry as an aid in the study of the various departments of nature; firstly, by showing its general effect on the progress of the natural sciences, and secondly, by adducing some recent discoveries as examples of its influence. Chemistry being the study of the facts connected with the elementary bodies which constitute our earth, and the laws which govern their union with, or separation from, each other, must necessarily lie at the root of all complete investigation of natural phenomena. The wild speculations which pervaded science before chemistry became settled on a basis of determined

facts, have one by one passed away, and are replaced by views which owe their influence to their real or supposed agreement with facts, mainly derived from the study of Chemistry.

What arithmetic is to the higher branches of mathematical study, Chemistry is to the natural sciences, as it supplies the knowledge of the principles which rule the mineral and organic kingdoms. It is the most positive of the sciences, as it will grant nothing which resists inexorable experiment, and therefore confines itself to the study of the facts connected with matter, and does not meddle with the forces which produce natural phenomena.

To Geology it is an indispensable companion, yet it has been often totally disregarded in hypotheses as to the origin of rocks. Thus dolomite has been supposed to have been formed by volatilisation of carbonate of magnesia from below into limestone strata. The chemical objections to this theory are, that carbonate of magnesia is decomposed by heat into carbonic acid and magnesia, and that magnesia cannot be fused, much less volatilised, at the highest temperature hitherto attained.

The earlier rocks, the so-called metamorphic and granitic rocks, were at one time unhesitatingly attributed to the action of intense heat. Modern chemical discoveries throw great doubt on the igneous theory, even with regard to granite, and render it extremely probable that water, under the influence of heat, produced the results which we see.

Mineralogy is still more dependent upon Chemistry, for in it we have substances of a definite chemical composition to deal with. Formerly physical properties alone were the guides in the arrangement of minerals, and the most diverse substances were brought into immediate connection. The formation of minerals was generally attributed to the action of intense heat, but Chemistry has shown that many may be

artificially produced by the action of aqueous solutions; and in the case of others, by showing that they are decomposed by strong heat, or would under its influence act chemically on surrounding substances, it proves that they were not produced by igneous action. Iron pyrites can be prepared artificially in the wet way, and under the action of heat lose nearly half their sulphur. The diamond cannot have been produced by the fusion of carbon, for if air were present, carbonic acid would be produced at an intense heat, and even in its absence the diamond is converted into a coke-like mass at high temperatures.

In the vegetable kingdom each plant is a wonderful laboratory. From the simplest bodies—carbonic acid, water, ammonia, and mineral salts—compounds of wonderful complexity and the most diverse properties are formed. Acids, alkaloids, and neutral bodies are thus produced, and the chemist with all his resources is only just entering upon this field of labour. Still many organic substances have been prepared from inorganic materials, as alcohol and its derivatives, many hydrocarbons, formic acid, &c., are a few of a yearly increasing list. Many valuable substances may be artificially prepared from other organic substances; and it is within the bounds of possibility that sugar, quinine, &c., may some day be prepared in the laboratory, and we may thus be rendered independent of all foreign supplies.

In the vegetable should be, if anywhere, the home of "vital force." The task of producing complex bodies from simple ones, at least appears greater than that of assimilating and then decomposing them. The animal only appropriates the albumen, fibrin, and caseine which it finds in the plant; and in transforming saccharine into fatty bodies, it probably performs its most constructive act, chemically speaking. We have the vegetable under control. The microscope shows us its interior working; and although we cannot reproduce,

in the majority of cases, out of the plant, the results which we remark in it, we see that the changes are chemical; from definite chemical compounds other definite bodies are produced; and, in short, the action of the vegetable is the chemical one of combination and de-oxidation. It will be as well to give up the search after the cause which, under precisely similar outward conditions, causes each different seed to produce a plant after its kind, and directs the formation of leaf, stem, flower, and fruit. This is unknown; and we do but veil our ignorance under a cloak of words when we give it a name which would seem to ally it to those forces, some of whose laws are known, and whose working can be predicted. It is a condition, or sum of conditions, under which certain chemical actions take certain directions, and which, while it governs their limits and affects their results, does not do so in violation of chemical laws.

In thus speaking of life, the question arises, Can this condition or state be brought about by any different means than that of generation, or descent from an ancestor? We cannot positively answer this question; the researches of Pasteur tending to deny it, and the carefully conducted experiments of Pouchet leading to the conclusion that both vegetable and animal life may thus originate. I cannot believe that chemical force can originate life. In the experiments alluded to, already organised matter was always employed; and no experiments have yet proved that chemical force acting on unorganised material can produce organisation.

In systematic Botany the influence of Chemistry is not so strongly felt, as it deals with the outward appearances of plants. It is, nevertheless, an interesting study to investigate the products obtained from the natural orders, and thus find another bond of union.

In vegetable physiology, the modifications of the seed in

germination, the starch becoming sugar, and this disappearing as cellulose forms, afford an example of the aid given by chemical knowledge. This is a field in which much work remains to be done.

In the animal kingdom, chemical decomposition and oxidation are at work; the tendency being from the complex to the simple. The compound bodies found in the vegetable are by the animal converted into carbonic acid, water, and urea, the near relative of ammonia. There are two classes of food, — saccharine and amylaceous, and albuminous. These have their distinct offices; the former sustaining the animal heat, and the other repairing the waste of the muscular frame. By analysis of the food and the excreta, Chemistry shows that part of the heat produced is transformed into motion, and has exploded the assertion that the action of muscle was due to its oxidation, and that the amount of work was the equivalent of muscle consumed. The carbohydrates thus take their place as force producers; and we can now understand how the Irishman can work on potatoes, the Hindoo on rice, and our own navvies on fat bacon and bread. Chemistry has here lent valuable aid in solving a physiological problem.

The changes in the living body are different in kind and degree from those in the dead. We are told that the dead body becomes subject to the action of chemical laws. This is freely granted; but these laws are at work in the living body too. In both, the final result is the formation of carbonic acid, water, and ammonia with mineral salts; and this takes place with even greater rapidity and precision in the living body. The chemical action called fermentation, where one substance in a state of change induces change in another, is closely allied to some of the phenomena of animal life, and as we gain more knowledge of the true nature of ferments, we shall know more of animal Chemistry.

Closely connected with animal physiology in its normal state is that of the study of diseases, and the healing art. The importance of a knowledge of Chemistry in medicine is to a great degree acknowledged. Though we cannot yet trace the connection in a chemical sense between the remedy and the disease in most cases, yet I believe that we must trace such connection to form a true theory of medicine. In the meantime, a doctor possessed of chemical knowledge will not prescribe substances which neutralise one another, and, by means of the analysis of urine, will obtain valuable information in diagnosis. Poisoning would be repressed if medical men were known to have an acquaintance with toxicology, and by the analysis of vomited matters, or of the urine, the murderer might be checked ere his work was done.

Definite chemical substances are largely replacing crude unknown medleys. By administering, for example, quinine, instead of peruvian bark, the doctor is able to know the precise quantity of active medicine given, and the patient is relieved from the nauseous task of swallowing a vast amount of inert matter.

On leaving the earth it would seem that we should leave Chemistry behind. It is so distinctly a science of experiment, that to bring it to bear on objects whose distance makes millions of miles familiar to our ears, however indefinite to the mind, would seem a hopeless task. For long ages our only acquaintance with the outside universe was through meteoric stones. These contain no other elements than those which we meet with on the earth, but it is not certainly known whence these come, and the question remained, "Is our sun, and are the far distant stars which spangle the heavens, of like composition to our earth?" Modern science answers this, and though it be by means of optics, yet spectrum analysis was the discovery of chemists, and Chemistry gave the key to its mysteries.

It is not the object of my paper to explain the principles of spectrum analysis. It suffices for the purpose in view, to show that the most abstruse problems of astronomy,—as the nature of nebulous matter, the question as to whether nebulae are in all cases composed of stars, or in some instances agglomerations of vaporous matter, and the nature of comets,—are in process of solution, and that it is Chemistry which has given the clue.

When it was shown that each element has the power, when in a state of vapour, of indicating its presence on a spectrum by bright bands, and when a further discovery proved that the bright bands could be converted into dark lines, it became a matter, if not of absolute certainty, at least of the utmost probability, that like effects indicated like causes, and that the dark lines in the sun's spectrum show the presence of elements, the same as those which compose our earth, in its atmosphere of glowing vapour and in its incandescent mass.

Room is found for speculation as to the ultimate composition of matter in the tidings which some of the nebulae send us. Here all the metallic elements are absent, and almost all the metalloids, hydrogen, nitrogen, and an unknown substance, alone remain. If by the condensation of such vapour the various systems of the universe have been formed, we shall have to abandon the present list of elements, and should at once endeavour to prove them compounds. It may be that there is only one primal form of matter, and it is remarkable that the latest achievement of science should give some support to an ancient speculation.

In the mechanical appliances of Astronomy, Chemistry has lately done much. The preparation of reflectors, silvered by deposition of metallic silver, bids fair to place telescopes

of great power in the possession of persons of moderate means. By coating the eyepiece of a telescope with a thin film of silver, deeply coloured glasses can be dispensed with, and a better view of the sun's surface obtained. It is probable that more certain information of the constitution of the great source of light and heat will thus be attained.

Time would fail to speak of every branch of science. Agriculture has reaped the advantage of its alliance with chemical science, in the introduction of artificial manures, in the adaptation of crop to soil, and by analysis pointing out deficiency, the missing ingredient in the land can be discovered, which, if supplied, would make the wilderness to become a fruitful field.

Microscopical science owns Chemistry as her friend. It supplies re-agents to test the nature of the minute organisms brought within view, gives preservatives to keep the objects in perennial beauty, and in the lovely crystalline forms and colours of many salts, especially under the influence of polarised light, provides objects whose splendour recalls the fabled caves of Indus, where trees bore fruit of rubies, emeralds, and diamonds.

I have thus passed in rapid review the various sciences called natural, and, to give application to the general principles laid down, desire to call attention to a few recent discoveries in Chemistry having reference to them.

In Geology, perhaps no rock has given rise to more discussion than granite, with regard to its formation. By means of the oxy-hydrogen blowpipe, on a large scale, silica has recently been fused in considerable quantity. This fused silica is amorphous or glassy in structure, and has the sp. gr. 2.30. Silica, which we know has been deposited from aqueous solution in a crystallised form, has sp. gr. 2.60,

and the latter figure is the density of quartz in granite. Dr. Percy, in a recent course of lectures, says, "In this simple fact we have a foundation for the inference that granite could not have been formed under the condition of a high temperature."

I may perhaps be excused for alluding to a discovery of my own with reference to the production of anhydrous peroxide of iron. Dr. Percy calls particular attention to this as an unexplained matter. By exposure to a gentle heat, 50° to 60° , for a period of from six weeks to three months, in presence of water, hydrated peroxide of iron loses almost all its water, whilst under the influence of dry heat of the same degree no such dehydration takes place.

In vegetable physiology, it has been lately discovered that plants cannot decompose carbonic oxide. To account for the formation of the carbohydrates, which form so large a proportion of the vegetable structure—as starch, gum, sugar, and cellulose—the simultaneous decomposition of carbonic acid and water must be admitted, and thus the formation of these bodies becomes very clear and simple.

In animal physiology, perhaps the most startling assertion of modern science has recently been made. In a paper recently read before the Royal Society, Dr. Montgomery gives the results of experiments in which he formed cells, which, in all respects, were similar to those produced by vital processes. The substance used was myeline, obtained by treating hard-boiled eggs, brain substance, and other animal products with alcohol. It is also found in plants, and in seeds, especially in peas. This amorphous substance, under the action of albumen, either in white of egg or serum of blood, furnished the cells in question. To give his own words:—"By mixing myeline with blood serum globules were formed, showing the most lively molecular motion.

When the serum somewhat preponderated, the whole globules seemed after a while to undergo coagulation, and appeared often as beautifully and finely granulated as any real 'cell.' When this mixture of myeline and serum was spread very thinly on the glass slide, there often started into existence, on the addition of water, small primary globules, round which an irregular mass of granular material became gradually detached from the glass slide. It at last shaped itself into a secondary globule enclosing the primary one, and constituting with it, down to the minutest details, the most perfect typical 'cell.' In many instances the nucleolus did not fail, and the narrow white margin so often mistaken for a cell-wall was always present. Beautiful mother-cells were formed in the same manner. By operating in a different manner, bi-concave discs were formed, but usually much larger than blood-corpuscles." The Author, in conclusion, states that "'cells,' being thus merely the physical result of chemical changes, can no longer afford a last retreat to those specific forces called vital." Whether we consider this dictum as too absolute or not, there can be no doubt of the importance of the field for investigation thus opened.

I trust that there will remain no doubt that the successful student of natural science must possess chemical information. The fascination which Chemistry has exerted upon the greatest minds is thus explained. We can now understand why Newton studied alchemy; how Watt, in the midst of his mechanical labours, found time for research in Chemistry, which made him a co-discoverer with Cavendish of the composition of water; and that Faraday, Graham, Tyndall, and a host of others found in Chemistry a basis on which to build the beautiful structure of natural and physical science. Thus too must we work, not contenting ourselves with the superficial appearances of things, but diving into the secrets

of their ultimate composition and chemical changes. Thus shall we have a touchstone to distinguish between the pure gold of truth and the base metal of error, and with brighter light shall prosecute our researches into the world of wonders around us ; each day developing the simplicity and the grandeur of the laws emanating from the Almighty Creator.

ELEVENTH ORDINARY MEETING,

ROYAL INSTITUTION, March 18th, 1867.

The REV. C. D. GINSBURG, LL.D., President,
in the Chair.

AN EXTRAORDINARY MEETING

was held before the above, to consider for the first time the following alterations in the Society's Laws :—

In Law 41. To omit the word "Half-past."

In Law 47. Instead of "Eight o'Clock," to substitute the words "a Quarter to Eight o'Clock."

At the ORDINARY MEETING which followed,

Mr. T. J. Moore exhibited an interesting series, lately added to the Derby Museum, of breast bones (sterna) of the ostrich tribe, viz., two of the rhea, one of the ostrich, two of the emu, and one of the cassowary. "The sterna of most birds are developed from one pair of ossific centres, which, coalescing in the midline, usually consolidate the cartilaginous basis of the keel by continuous ossification therein" (Owen, *Anatomy of Vertebrates*, vol. 2, p. 20). In one rhea sternum, that of an adult bird, this ossification of the contiguous plates had taken place, but had not yet done so in the other sternum, though of nearly equal size. The ostrich sternum, though large, had not yet ossified into one piece. In the emu sterna, both of small size (the smaller being only $2\frac{3}{4}$ inches in length, including a posterior boundary of cartilage) ossification of the two parts had already been accomplished. The cassowary sternum was of full size, showing no trace of division.

Mr. A. Higginson made some remarks on the sternal bones of vertebrata generally, and expressed his satisfaction at the above acquisition, and that Osteology was so well cared for.

The following paper was then read :—

COMPULSORY EDUCATION.

By C. FLUECK, Esq.

COMPULSORY Education is a subject which of late has largely occupied the minds of statesmen and philanthropists, and has so often been spoken and written about, that it might be said that any further observations on such a matter are superfluous, inasmuch as everything that can be brought forward in support of the question has already been said repeatedly, and most ably. Yet, although I do not claim it as a merit of this paper, that it will bring much, if anything under the notice of this Society, which is new or better than what so many others have said before me, I cannot otherwise but consider the matter as of such vital importance, that I think nothing ought to be left undone which is calculated to bring this question to a satisfactory solution; and for that reason I beg you will not consider it presumptuous on my part, if I bring this subject before you. It is the bounden duty of every well-meaning and educated member of the community, not only to take an interest in everything which concerns the moral and physical welfare of his fellow-beings, but to lend a helping hand, according to his powers, towards improving those who are in need of it; and towards abolishing, as far as possible, certain crying evils which have existed so long to the disgrace of a civilised nation. The question has been repeatedly asked, whether education will do away with these

evils. If there be any truth in statistics, we are justified in drawing conclusions from them. Let us look at the statistics of poverty, immorality, and crime. Which are the classes that furnish the largest quota under each head? What tale do the calendars of sessions and assizes unfold? Who are they that figure in these lists of crime in the largest numbers? Certainly not those who have received even an inferior education, but those who, through the wickedness and neglect of their natural guardians, have grown up in utter ignorance. These facts alone, setting aside all others, prove therefore, not only that the uneducated classes produce by far the largest number of criminals, but consequently that education, by raising the moral status of its recipients, has the effect of preventing and diminishing crime.

Again, it is said, "How is it that, if education produces such good effects, with so greatly increased facilities for imparting and receiving secular and religious instruction, all the evils complained of are vastly on the increase?" The amount of crime is certainly as large as ever, but I do not think that we are justified in saying it is on the increase, taking the rapid growth of the population into consideration, especially in the large centres of manufacture and commerce. Secondly, even granted that, with increased facilities of education, crime in proportion has not diminished, is this a proof that education is at fault? Is it not more reasonable to arrive at the conclusion, that those classes, for whom all those great and praiseworthy efforts and sacrifices have been made, never derived the intended benefit from them? And why not? Because they are not only utterly indifferent, but absolutely refuse, for reasons of their own, to accept anything of the kind by mere persuasion. The consequence of all this is, that there exists, not only among the adult of the lowest classes an amount of ignorance, profligacy, prosti-

tution, and crime, which is perfectly sickening to behold; but, what is more horrifying still, that there also exist thousands and thousands of children, who not only are born and brought up amidst this pestilential atmosphere, but are systematically trained to be, and remain, festering ulcers and birds of prey of human society. For the former there is, I am afraid, very little hope of improvement, but for the latter we need not despair. With renewed and properly directed efforts, there is no reason why we should not succeed in bringing these stray sheep back into the fold, and in making them industrious, useful, and God-fearing members of the community. Assuming that a proper education would lead us to the desired result, but that all attempts which have hitherto been made in that direction have utterly failed, is it unreasonable that we should come to the conclusion that there are no other means left to us but compulsory education.

Compulsion — yes! “But look at the multitude of obstacles which show themselves in the way of such a measure; look at its probable interference with certain rights, and the violent hands it will lay upon the liberty of the subject.” These are the woeful songs, accompanied by the cry of increased rates and taxes, which are dinned in our ears. Now let us see whether there is any real foundation for all this clamour.

First of all, the inviolability of the liberty of the subject.

What is the liberty of the subject? What does it mean? How far does it go? And when does it cease? Does it mean that every free-born Briton can do what he likes, or that it confers upon its fortunate owner an unlimited power of disposing of his own in whatever way his fancy leads him? Although very absurd, these ideas have nevertheless taken deep root in the minds of some people, whom it is not only very difficult to convince of their mis-

conception, but who, in their firm belief in the infallibility of their argument, use it like a sledge-hammer whenever the opportunity offers itself. For all that, the truth remains, and must be forced upon these people, that from the moment any individual commits any act whatever, which, either directly or indirectly, tends towards injuring the moral or physical welfare of his fellow-beings, his claim to the protection of the liberty of the subject ceases ; and the law, if there be any for the purpose, has a perfect right to compel the originator of the nuisance, either to abstain from continuing it, or, in case of non-compliance, to punish him. Should there be no law for the purpose, then the community are not only justified, but in duty bound, to put in motion every legal means by which to obtain such powers, which will enable them to abolish the nuisance and punish the offenders. To say anything further on this head would be superfluous. In spite of its "*noli me tangere!*" the liberty of the subject is interfered with, whenever the welfare of the community requires it. As an argument it does very well on the hustings, where, without doing much harm, it answers its purpose, because it flatters a free and independent constituency ; but under present circumstances it stands about on a par with the assertion, that it is unmanly to bathe without bathing-drawers.

The next objection, which is somewhat akin to the first one, is raised against the interference of a compulsory measure with existing interests and institutions. Well, if compulsion is to answer its purpose, how can it do otherwise than interfere with existing institutions, which hitherto have manifestly failed in obtaining the results aimed at ? If these institutions are to be left intact, how is it possible to carry on a strict supervision and control over parents and children, who are remiss in compliance with the requirements of the law and in regular attendance at school ? The very aim and

end we are striving for would be frustrated, and any Act of Parliament, which does not give to local authorities full powers of supervision over all primary schools, will invite the proverbial coach and four to perpetual motion, and becomes only a bundle of waste paper. It is true that the Manchester bill offers a remedy for such an evil, by holding out the greatest facilities to existing schools for union with those schools which would fall under the entire control of the local authorities; but it is much to be feared that the offer would not meet with a general acceptance, precisely on account of this very control which would be exercised over them. Therefore, if a compulsory measure is to produce any good effects, it must do more than offer facilities for union, it must compel it. Besides ensuring a perfect control over regular school attendance, compulsory union would have the advantage of simplifying the complicated educational machinery, and making the divided means and efforts more compact, and consequently more efficient.

Objection number three makes its appearance in the shape of increased rates and taxes, and the discontinuance of private voluntary contributions. This bugbear has, no doubt, for a good many people a far more formidable aspect than the two first-named ones; but experience shows us, that such opposition very seldom deters the powers that be from exacting such imposts, when certain sanitary improvements and other changes of more doubtful utility have been decided upon. As a rule the rate-payers submit—not without grumbling, for that is a privilege which no Englishman will easily surrender—but pay they do, and will continue to do so, whenever called upon in a sensible way. Besides, there are two other points which may be brought forward against the objection. Under the present system of education of the poor, the burden has been resting upon the shoulders of comparatively few, whilst a great portion of the

members of the community escaped scot-free. An equally divided educational rate will do away with this injustice, and will enable the charitably inclined (this in answer to the 2nd part of the 3rd objection,) to make use of their contributions in another direction, *i. e.*, for subscriptions and endowments of childrens' infirmaries and other benevolent institutions of a similar kind, which are very much in need of increased assistance. The second advantage to be obtained is the prospective diminution of heavy rates, which are paid for the maintenance of gaols and workhouses.

But I may be told: "Granted that all these objections are untenable, what will you do about religious instruction? Will not our religious differences at once, and for ever, put a stop to any such measure as you are advocating?"

Well, I will not deny that denominationalism is an obstacle which it is not very easy to overcome; but it is also my firm conviction that this formidable stumbling-block is mainly the creation of our own fears, and that if we were to pluck up courage, and set manfully to work, we should find that there is, after all, nothing that a strong will and perseverance could not remove.

The difficulty to be settled is this: "Who is to give religious instruction, and of what kind is it to be? Are clergymen to be the instructors, and is the teaching to be dogmatical?" I think neither the one nor the other would be desirable, *ex officio*, in public primary schools, which are supported by public rates and taxes. Religious teaching in schools of this description ought to be of the simplest kind, strictly avoiding dogmatical differences, and aiming at nothing further but a sound knowledge of Bible-history, and imbuing the juvenile mind with the broad principles of Christianity. All this could and ought to be done by the schoolmaster, independently of any other religious teaching, which might be given at certain appointed hours, and

in separate rooms, by clergymen of different denominations appointed for the purpose. A "Children's Bible," compiled by a commission composed of members of the different Christian denominations, would serve both as a suitable reading-book, and an appropriate means of imparting those Christian truths which are the basis of all really moral and social life. Religious instruction of this nature, properly adapted to the understanding of its recipients, need not, nor would it, interfere with a more complicated and dogmatical instruction, which might, as it is already the case in workhouses, industrial schools, reformatories, gaols, &c., be given at such times and in such places as the law would prescribe. For this purpose parents and guardians, on entering their children on the school-registers, would have to make a declaration as to the particular denomination they belong to. If our religious differences do not stand in the way where our criminal classes are concerned, why should we consider them insurmountable where it is the question of saving thousands of human beings from impending misery, immorality and crime, and the consequent evils of over-crowded workhouses and prisons? For the Lord's sake, who has taught us mutual love, charity and forbearance, let us for once cast aside our dogmatical quarrels, and hold out a helping hand, in true Christian spirit, to our neglected brethren, who need all our united efforts to make them, with the help of God, what they ought to be, *i. e.* God-fearing men, and useful members of society.

And now for one objection, which this time I take upon myself to make, not to the proposed compulsory measure as such, but to its permissive character. I have before pointed out, that optional union of schools, as proposed by the Manchester bill, would be a means of, to a certain degree, defeating the success of the measure.

I do not for a moment lose sight of the enormous import-

ance and the pressing necessity of obtaining an Act of Parliament, which would enable us to alleviate at least the misery and to lessen the evils produced by the present unsatisfactory state of affairs. But I also know that people are only too ready, under even the most pressing circumstances, to accept any palliative measure, provided it gives momentary relief. Such ought not to be the case. If we once perceive the necessity of a cure, and make up our minds to resort to it, why not at once choose a radical one, if it be within our reach? Whether the evil be a local or general one makes no difference; if the remedy be the same for both in substance, all we have to do is to vary the quantity and strength. The evil before us is a local one in Manchester, but that does not exclude its existence over the whole land. The remedy for Manchester is compulsory education, and it is recommended from thence as equally efficient for the other suffering parts of the country. But is it sufficient that the Manchester people should get the antidote for themselves alone, with the gracious permission for others to use it if they choose? The remedy has already been most persistently offered in a milder dose for those people that require it, and we know how the offer has been accepted. Offer the stronger dose to certain authorities with the option of refusal, and the answer is easily guessed. The Manchester movement is undoubtedly a good one, and goes in the right direction, but it is merely putting in the thin end of the wedge, without striking it home. Unless we obtain a measure which is binding for all alike, we shall only have partial success; and sooner or later we shall be obliged to set to work again, and resort to a measure which, with a little more energy, might have been obtained from the very beginning.

Having said this much about the proposed measure and the objections to it, I will now, with your permission, proceed with that part of my paper in which I wish in a few

outlines to explain to you a compulsory system of education and its practical working, which has been in use for the last thirty-five years in my native country, *i. e.*, the Canton of Berne.

The present system of education in the Canton of Berne took its origin in 1831, and in the constitution of that year we find the following general enactments and definitions:—

“Every one has the right to teach, within the limits fixed by the law.

“No one is allowed to bring up children entrusted to his care, without at least that degree of education which is given in the public primary schools. It is the duty of the people and its representatives to provide a proper education for the young.

“The government and the communes have to support and promote all public educational institutions. The law fixes the proportions of their respective contributions.”

[This clause, in any compulsory measure to be introduced in England, is of vital importance. Without a compulsory educational rate, compulsory education would be utterly impracticable.]

“The weal and woe of every state are based upon the moral value of its citizens; without the proper culture of heart and mind, there is no real freedom imaginable.”

The following are the institutions at present supported and maintained by Government:—

1. Primary Schools;¹ 2. Secondary Schools; 3. Pro-gymnasia and Colleges; 4. The Cantonal Schule at Berne; 5. The University; 6. Training Schools for male and female teachers; 7. Training Schools and refuges for deserted or neglected children and orphans; 8. Deaf and Dumb Institutes.

¹ In 1854, the population of the Canton consisted of 458,225 inhabitants, and the number of children educated at 1,246 Public Primary Schools, was 91,054.

PRIMARY SCHOOLS.

Primary Schools and their purposes are described as follows :—

Public Primary Schools are educational institutions founded by authority of the state, which have the purpose of calling forth and developing the natural talents and mental powers of every child, so as to enable it to fulfil its destiny as a man, a christian, and a citizen.

School Attendance.—All children, having reached their sixth year of age, are obliged to frequent the public primary school of their district; Protestants until confirmation, and Catholics until two years after their first communion.

From this obligation are excepted :—

1. Children frequenting a higher school;
2. Children frequenting a certified private primary school;
3. Children receiving their education at home, provided such education be at least equivalent to that imparted by primary schools; in which case the father or guardian has to give notice of his intention to the local educational board, and has furthermore to prove his qualifications for teaching;
4. Children frequenting any factory-school; in which case the principal has to receive permission from the Secretary of State for Public Education, and has to guarantee an equal education as primary schools offer. The children to receive their instruction during working hours.
5. Children having been found incapable of being taught after a certain time of attendance at school, and children suffering from bodily infirmities.

[Some of the objectors to a system of compulsory education seem to labour under the mistake that, once public primary schools are provided, parents and guardians would be obliged to send their children to these schools. A clause like the foregoing is in itself sufficient to prove the fallacy of such an idea.]

Every pupil has, from his sixth up to his accomplished

sixteenth year of age, to attend school all the year round, with the exception of eight weeks holidays. In summer during at least eighteen, in winter at least twenty-four hours per week. All parents and guardians are compelled to send the children entrusted to their care regularly to school, and have within eight days to account for absences to the teacher. Parents neglecting their duties, are to be reprimanded by the local board, and in case of repetition to be taken before a magistrate and fined or imprisoned. Fines and imprisonment to be doubled in case of further relapse.

[These penalties were inserted in the Act for the purpose of reaching the outlying rural districts, where school accommodation was scarce, and the public mind not so far advanced as in towns and the more densely populated districts. However, an increased number of schools and teachers, and the active surveillance of district school commissioners and school synods, ensured a proper attendance at school, and the rigour of the law had very seldom, if ever, to be resorted to.]

As to the number of primary schools, the law gives the following directions:—

School-buildings.—There is to be provided a sufficient number of public primary schools to make it impossible for any child being debarred from obtaining proper instruction by too long distances, or by over-crowding.

Every school-building has to contain a sufficient number of spacious and lofty rooms, besides a decent dwelling for the schoolmaster, according to plans and regulations laid down by government. The buildings to be constructed, maintained, and repaired by the districts, at their own expense; the proportioned government assistance to be paid, after an official declaration that the building has been constructed according to prescribed plans and regulations, and has been insured against fire to the full amount of its value.

Every public primary school is to be divided, according to age and proficiency of the pupils, into an elementary class, and one or more upper classes ; each class to have its own teacher, and a separate room.

Instruction at Primary Schools.— The indispensable instruction, which both boys and girls have to receive at these schools, consists in —

1. Christian religion ; 2. Knowledge and application of the mother-tongue for reading and comprehension, and for the correct oral and written expression of thoughts ; 3. Arithmetic ; 4. Caligraphy ; 5. Singing.

[Religious instruction consists in reading and explaining the authorised “Kinderbibel,” and learning by heart of hymns, &c. Dogmatical instruction is given when the children have reached a certain age, according to denomination, by the clergyman, at certain fixed hours, either at his own home, or at the places appointed for the purpose.]

The following subjects are to be introduced as soon as the children have been properly prepared :—

1. Linear drawing, applied to distinguishing, representing, and measuring outward forms in their simplest elements.

2. History, with especial reference to the Fatherland.

3. Geography.

4. The elements of natural sciences.

5. General knowledge of the social institutions and leading principles of the constitution, and the consequent position of men towards each other and the state, as well as their principal civil rights and duties.

6. Introduction to book-keeping and husbandry.

The gradual introduction of corporeal exercises is to be encouraged and promoted by the state.

In order to ensure a thorough and systematical instruction, the teachers have not only to follow certain general

rules and directions, but are obliged to furnish the authorities half-yearly with a plan of studies, specifying the gradual process to be followed in each branch, as well as the division of school hours.

No books or other teaching materials are to be introduced in any public primary school without the sanction of the Director of Public Education. Parents, or their representatives, have to provide their children with the necessary books and writing materials. The school districts furnish the requisite boards, maps, &c.; and pay for the necessary books and writing materials to be used by poor children; the materials to remain the property of the school.

Poor districts are to be assisted and encouraged by the authorities with presents of teaching-materials. Government has also to take the necessary steps for ensuring a sufficient supply of the requisite teaching-materials at the lowest possible cost.

Teachers.—Candidates, both male and female, for vacant situations as teachers in primary schools, must have passed the necessary examinations, and be in possession of a certificate. Their election rests with the local authorities, which have to choose from two candidates proposed by the district educational board. No vacancy can be filled up without its having previously been published in the *Government Gazette*. Applications have to be made to the district board, and candidates have to be examined in public by the school commissioner, both theoretically and practically.

All teachers in primary schools are appointed for life, and can only be removed by the decision of a judge.

In case a teacher be not a member of the district board, he is to have a consulting voice in all matters which do not concern him personally.

Although no teacher has to perform any active military duties, he is obliged to instruct young men, from seventeen

to eighteen years old, during a specified time in winter, in their rights and duties as citizens and defenders of their country, and to teach them patriotic songs.

Training Schools.—In order to provide a sufficient number of efficient teachers of both sexes for the national schools, there exist in the Canton four so-called seminaries, or training schools, two for the German-speaking part, and two for the French.

Candidates for these institutions receive their preparatory tuition from eminent schoolmasters, who are selected and paid for this purpose by government.

The obligatory course of studies comprises :—

Religion, psychology and pedagogical science, knowledge of the mother-tongue, arithmetic, geometry, book-keeping, history, geography, natural sciences, singing (and in the German establishments piano-playing), drawing, caligraphy, gymnastics and practical teaching. For this latter purpose there are model schools attached to the seminaries, and some of these institutions are also connected with large agricultural establishments.

The arrangements of these training schools are such, that even the poorest may avail themselves of their advantages. The pupils receive their education gratis, and pay about £4 a-year for board, &c.; but this payment is never exacted from those in poorer circumstances.

No candidate for any vacant situation in any public school is obliged to have been a pupil at these training schools; all that is required of him is that he must pass the necessary examination.

Teachers who wish to do so may attend, free of all expense, during two or three months, the repetition courses, which are held yearly at the training schools.

Educational Authorities.—The educational authorities are constituted as follows :—

1. The secretary of state for public education ; 2. The communal council ; 3. The district educational board ; and lastly, the school commissioner.

The communal council elect the teachers, fix the number of local boards, appoint their members, and prepare, at the beginning of each school-year, a correct register of the children obliged to attend school.

The members of the local boards are elected for six years, and their duties consist in superintending the schools and watching over the strict execution of the educational laws.

The school commissioner is proposed by the director of public education, and elected by government, for the term of three years. His functions consist mainly in watching over and reporting all district educational matters, examining candidates, investigating matters of complaint or dispute, &c. In fact he is the local representative of government.

The members of all school authorities are chosen directly from the general body of electors. The parish clergyman is not *ex officio* a member of any of these boards, but is frequently appointed as such by the parishioners.

School Synods.—Besides the above educational authorities, we have the school synod. This institution has the twofold aim of assisting, on the one hand the public authorities in rectifying and developing public education by exercising their right of motion and advice, and of promoting on the other hand the constant progress and uniform efficiency of the whole body of teachers. All the teachers of the public schools in one district, with the exception of the professors at the university, form together a district synod. They appoint out of their number and from the general body of electors for the term of one year, one delegate for every ten members. The delegates of all the district synods form the school synod of the Canton, and appoint from among their number an executive committee.

The functions of the school synod consist in—

1. Taking into consideration all laws, decrees, and regulations concerning public education.
2. Investigating the general plan of instruction, and approving the teaching materials for the national schools.
3. Discussing the means of improving public education, and raising the status of the nation in general.
4. Examining the reports of the central committee and the district synods.

All decrees and general regulations, concerning public schools, except the university, have, before promulgation, to be submitted to the school synod or its executive.

The district synods, as well as each member, have the right of bringing motions concerning educational matters before the school synod.

The general synod has to meet once a year, but can also be brought together at the call of the director of public education, the central committee, or at the request of five district synods. Besides performing the already mentioned duties, the district synods are enjoined to promote their mutual improvement in knowledge, and in the efficiency of conducting the schools entrusted to their care.

Every year the central committee has to submit to the district synods two pedagogical questions, and lays the respective answers before the general assembly.

The district synods are obliged to meet at least twice a year, and the attendance of members is compulsory. Each member is also bound to write yearly two essays.

[The district school commissioners and school synods have been proved to be of the utmost value in the proper carrying out of the compulsory system in Switzerland, especially in the outlying rural districts, where, besides other difficulties, the narrow-mindedness and obstinacy of parish authorities had to be overcome. There, as well as in England and elsewhere, "Bumbledom" could or would not see the advantages of education, and had to be driven to do its

duty by those who knew better ; and the establishment of similar educational authorities in this country would, I presume, prove as necessary and efficacious as it has done in Switzerland.]

Having arrived at this point, I have brought the subject to a conclusion, as far as compulsory primary education is concerned. I should have liked to go a little further, and describe to you the manner in which the higher educational establishments, starting from this broad basis, are connected with each other, the general principles upon which they are conducted, and the final results obtained. As time would not permit my doing so, I have confined myself to the most important part of the subject, and all I wish for is, that the system I have laid before you may contain some useful hints, and that my own remarks may have the effect of calling forth a thorough discussion of a question which is of the utmost importance to this country.

ADDITIONS TO THE LIBRARY,

RECEIVED FROM MAY, 1866, TO MAY, 1867.

1866,	Title.	Donor.
OCTOBER 15th.		
	Journal of the Society of Arts, May to September	<i>The Society.</i>
	Journal of the Scottish Meteorological Society,	
	April and July	<i>The Society.</i>
	Journal of the Linnæan Society, nos. 33-37 .	<i>The Society.</i>
	Quarterly Journal of the Geological Society,	
	May and August	<i>The Society.</i>
	Journal of the Chemical Society, May-October .	<i>The Society.</i>
	Report of the British Association for 1865 .	<i>Dr. Inman.</i>
	Journal of the Royal Geographical Society for 1865	<i>The Society.</i>
	Journal of the Statistical Society of London,	
	June and September	<i>The Society.</i>
	Journal of the Franklin Institute, January-	
	August	<i>The Institute.</i>
	Proceedings of the Zoological Society, 1865 .	<i>The Society.</i>
	Proceedings of the Royal Society, nos. 83,	
	84 and 85	<i>The Society.</i>
	Proceedings of the Literary and Philosophical	
	Society of Manchester, vols. 3 and 4 . . .	<i>The Society.</i>
	Journal of the Royal Asiatic Society . . .	<i>The Society.</i>
	The Anthropological Review, January and April	<i>The Society.</i>
OCTOBER 29th.		
	Journal of the Society of Arts, nos. 726, 727 .	<i>The Society.</i>
	Monthly Notices of the Royal Astronomical	
	Society, no. 9, vol. 26	<i>The Society.</i>

Title.	Donor.
Journal of the Franklin Institute, September 1866	<i>The Society.</i>
Transactions of the Liverpool Polytechnic Society	
October 20	<i>The Society.</i>
Proceedings of the Liverpool Architectural and	
Archæological Society, October 17 . . .	<i>The Society.</i>
Transactions of the Northumberland and Durham	
Natural History Society, vol. 1, part 2 .	<i>The Society.</i>
Report of the Proceedings of the Birkenhead	
Literary and Scientific Society, 1865-6 .	<i>The Society.</i>

NOVEMBER 12th.

Journal of the Society of Arts, nos. 728, 729 .	<i>The Society.</i>
Proceedings of the Anthropological Society of	
Manchester, and Inaugural Address of the	
President	<i>The Society.</i>
Transactions of the Royal Irish Academy,	
vol. 24, part 3, Literature, part 5, Science,	
parts 5, 6, Antiquities	<i>The Academy.</i>
Paper on the Vale Crucis Abbey, by M. C. Jones	<i>The Author.</i>
Proceedings of the Royal Society of Edinburgh,	
session 1864-5	<i>The Society.</i>

NOVEMBER 26th.

Annual Report of the Halifax Literary and	
Philosophical Society, 1866	<i>The Society.</i>
Transactions of the Liverpool Polytechnic Society	<i>The Society.</i>
Proceedings of the Liverpool Architectural and	
Archæological Society, November 1866 . .	<i>The Society.</i>
Journal of the Society of Arts, nos. 730, 731 .	<i>The Society.</i>
Quarterly Journal of the Geological Society,	
November 1866	<i>The Society.</i>
List of the Geological Society of London . .	<i>The Society.</i>
Journal of the Chemical Society, November 1866	<i>The Society.</i>
Journal of the Scottish Meteorological Society,	
October 1866	<i>The Society.</i>
Journal of the Franklin Institute, vol. 82, no. 490	<i>The Institute.</i>

DECEMBER 10th.

- Medico-Chirurgical Transactions, vol. 19 . . . *The Society.*
 Justin Martyr and Athenagoras, and the Apostolic
 Fathers, two volumes of Clark's Anti-Nicene
 Christian Library *Mr. R. A. Macfie.*
 Proceedings of the Royal Geographical Society,
 vol. 10, no. 6 *The Society.*
 Journal of the Society of Arts, no. 732 . . . *The Society.*
 Journal of the Linnæan Society, vol. 9, no. 38 . *The Society.*
 Proceedings of the Liverpool Architectural and
 Archæological Society *The Society.*
 Report of the Liverpool Waterworks Engineer,
 October 1866 *Corporation of Liverpool.*

1867,

JANUARY 7th.

- Journal of Society of Arts, nos. 734, 735,
 736, and 737 *The Society.*
 Transactions of the Liverpool Polytechnic Society *The Society.*
 Supplement to "Ancient Meals," by Dr. Hume . *The Author.*
 Proceedings of the Royal Society, vol. 15, no. 87 *The Society.*
 Proceedings of the Meteorological Society, vol. 3,
 no. 26 *The Society.*
 Transactions of the Botanical Society of
 Edinburgh, vol. 8, part 3 *The Society.*
 Journal of the Statistical Society of London,
 vol. 29, part 4 *The Society.*
 Transactions of the Royal Scottish Society of
 Arts, vol. 7, part 2 *The Society.*
 Journal of the Franklin Institute, vol. 82, no. 491 *The Institute.*
 Abhandlungen Heranseygegeben von Naturwissen-
 schaftlichen V. zu. Bremen *The Society.*

JANUARY 21st.

- Proceedings of the Liverpool Architectural and
 Archæological Society, nos. 733, 738 and 739 *The Society.*

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Journal of the Society of Arts	<i>The Society</i>
Journal of the Liverpool Polytechnic Society, .	<i>The Society.</i>
Journal of the Chemical Society, January 1867	<i>The Society.</i>
Proceedings of the Royal Society, vol. 15, no. 88.	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, December 1866	<i>The Society.</i>
A Pamphlet on the term Esquire, reprinted from the Liverpool Courier	<i>The Author.</i>

FEBRUARY 4th.

Proceedings of the Liverpool Architectural Society	<i>The Society.</i>
Journal of the Society of Arts, nos. 740, 741 .	<i>The Society.</i>
Journal of the Franklin Institute, vol. 82, no. 492	<i>The Institute.</i>
Journal of the Chemical Society, December 1866	<i>The Society.</i>
Journal of the Asiatic Society, vol. 2, part 2, no. 35	<i>The Society.</i>
Journal of the Linnæan Society, vol. 9 . . .	<i>The Society.</i>
Glimpses at the Origin, Mission and Destiny of Man, by Lawrence Heyworth	<i>The Author.</i>

FEBRUARY 18th.

Journal of the Society of Arts, nos. 742, 743 .	<i>The Society.</i>
Proceedings of the Royal Society, no. 89 . .	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, January 1867	<i>The Society.</i>
Journal of the Chemical Society	<i>The Society.</i>
Journal of Liverpool Polytechnic Society .	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
Comparisons of Standards of Length, from the Ordnance Department.	

MARCH 4th.

Journal of the Society of Arts, nos. 744, 745 .	<i>The Society.</i>
Proceedings of the Royal Society of Edinburgh, session 1865-6	<i>The Society.</i>

Title.	Donor.
Sessional Papers, part 11, no. 2, of the Royal Institute of British Architects, 1866-7 . . .	<i>The Society.</i>
Journal of the Chemical Society, March . . .	<i>The Society.</i>
Journal of the Franklin Institute, 1867 . . .	<i>The Institute.</i>
Reflections on the Position and Prospects of Architecture, by H. H. Statham, Jun. . . .	<i>The Author.</i>
Proceedings of the Liverpool Architectural and Archæological Society, November 1866 . . .	<i>The Society.</i>
Proceedings of the Meteorological Society, November 1866	<i>The Society.</i>
Quarterly Journal of the Geological Society February 1867	<i>The Society.</i>

MARCH 18th.

Proceedings of the Royal Society for February 1867	<i>The Society.</i>
Proceedings of the Royal Geographical Society, for February 1867	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, for February 1867	<i>The Society.</i>
Journal of the Scottish Meteorological Society, January 1867	<i>The Society.</i>
Journal of the Society of Arts, nos. 746, 747 . . .	<i>The Society.</i>
Mitherrlungen der Kaiserlich Koniglichen Geo- graphischen Gesellschaft Wien	<i>The Society.</i>

APRIL 1st.

Journal of the Society of Arts, nos. 748, 749 . . .	<i>The Society.</i>
Proceedings of the Meteorological Society, January 1867	<i>The Society.</i>
Proceedings of the Berwickshire Naturalists' Club	<i>The Club.</i>

APRIL 15th.

Journal of the Franklin Institute, February 1867	<i>The Institute.</i>
Proceedings of the Royal Society, vol. 15, no. 91	<i>The Society.</i>
Journal of the Chemical Society, April 1867 . . .	<i>The Society.</i>
Journal of the Linnæan Society, April 1867 . . .	<i>The Society.</i>

Title.	Donor.
Proceedings of the Meteorological Society, February 1867	<i>The Society.</i>
Journal of the Society of Arts, nos. 750, 751 .	<i>The Society.</i>
Journal of the Statistical Society, March 1867 .	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
Journal of the Liverpool Polytechnic Society .	<i>The Society.</i>

APRIL 29th.

Journal of the Society of Arts, nos. 752, 753 .	<i>The Society.</i>
Mitherrlungen der Kaiserlich Koniglichen Geo- graphischen Gesellschaft der Wien . . .	<i>The Society.</i>
Verhandlungen des Vereins fur Naturkunde ter Presburg	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, March 1867	<i>The Society.</i>
Journal of the Franklin Institute, March 1867	<i>The Institute.</i>
Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
Proceedings of the Liverpool Philomathic Society, 1865-6	<i>The Society.</i>
Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1864-5	<i>The Society.</i>

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DURING THE
FIFTY-SEVENTH SESSION, 1867-68.
No. XXII.



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DAVID MARPLES, LORD STREET.

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1868.

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The Authors have revised their Papers.

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ON THE SOCIETY'S ROLL AT THE CLOSE OF THE 57TH SESSION.

Those marked † are Original Members of the Society.

Life Members are marked with an Asterisk.

Oct. 11, 1833 Aikin, James, 2, *Drury-lane*, and 4, *Gambier-terrace*.

Nov. 4, 1867 Allen, Jno. Fenwick, *Windleshaw, St. Helens*.

Jan. 8, 1861 Anderson, David, 23, *Clifton Park, Birkenhead*.

March 7, 1864 Archer, F. jun., B.A. Trin. Coll., Cantab., 10, *Rodney-street*, and 3, *Brunswick-street*.

*Nov. 28, 1853 Archer, T. C., F.R.S.E., F.R.S.S.A., Director of the Industrial Museum, Scotland, *Edinburgh*.

Dec. 14, 1863 Ashe, Theop. Fielding, *Atherton-street*, and 4, *Dingle-lane*.

- Feb. 22, 1855 Avison, Thomas, F.S.A., 18, *Cook-street*, and *Fulwood Park, Aigburth*.
- Dec. 10, 1860 Barr, Rev. Hermann, Ph. D., *Chatham-pl., Edge-hill*.
- Jan. 11, 1864 Bagshaw, John, 87, *Church-street*, and *Canning-terrace*, 201, *Upper Parliament-street*.
- May 1, 1854 Bahr, G. W., *Old Castle Buildings, Preeson's-row*, and 2, *South-hill Grove, Aigburth*.
- May 4, 1863 Bailey, Fras. J., M.R.C.S., 51, *Grove-street*.
- Oct. 29, 1860 Banister, Rev. W., B.A., *St. James's Mount*.
- Jan. 13, 1862 Baruchson, Arnold, *Batavia Buildings, Hackins Hey*, and *Blundell-sands, Great Crosby*.
- March 9, 1857 Bell, Christopher, *Moor-street*, and 60, *Bridge-street, Birkenhead*.
- Dec. 10, 1866 Benas, Baron Louis, Banker, 5, *South Castle-street*.
- Nov. 14, 1864 Bennett, J. M., *St. George's-place, Lime-street*, and 109, *Shaw-street*.
- Feb. 6, 1854 Bennett, William, *St. George's-place, Lime-street*, and *Lancaster*.
- Nov. 2, 1863 Billson, Alfred, 10, *Cook-street*, and 5, *Cavendish-road, Birkenhead Park*.
- Oct. 31, 1859 Birch, Jas., 13, *The Temple, Dale-street*.
- Jan. 25, 1864 Birchall, James, Governor of the Liverpool Industrial Schools, *Kirkdale*, HON. SECRETARY.
- April 15, 1861 Blake, James, 63, *Kitchen-street*, and 45, *Canning-st.*
- Mar. 9, 1866 Blood, William, *Chamber of Commerce*.
- Nov. 26, 1866 Boulton, Jos., 15, *Exchange Buildings*.
- *Mar. 6, 1835 Boulton, Swinton, 1, *Dale-st.*, and 3, *Bedford-st. South*.
- Nov. 27, 1865 Biggs, Arthur Worthington, *Brown's Buildings*, and 76, *Upper Huskisson-street*. (I. Cook and Sons.)
- Nov. 18, 1867 Biggs, Russell H. W.; Messrs. Duncan, Squarey & Co., Solicitors, *Water-street*.
- Nov. 4, 1867 Bramwell, Ed., *Cowley Hill, St. Helens*.
- Oct. 21, 1844 Bright, Samuel, 1, *North John-street*, and *Sandheys, Mill-lane, West Derby*.
- *Jan. 8, 1855 Brockholes, James Fitzherbert, *Puddington Old Hall, near Neston*.
- Oct. 31, 1864 Bromham, William, 57, *South John-street*, and 8, *Montpellier-terrace, Upper Parliament-street*.
- Oct. 29, 1866 Brown, Rev. H. Stowell, *Windsor-terrace*, 274, *Upper Parliament-street*.

- Dec. 2, 1861 Browne, G. Mansfield, 15, *Fenwick-street*, and 15, *South-hill-Road, Toxteth Park*.
- Nov. 12, 1866 Browne, Edgar A., 83, *Everton-road*.
- April 21, 1862 Bulley, Samuel, *Borough Buildings*, and *East Lodge, Prince's Park*.
- Feb. 4, 1867 Burden, Edward, 79, *Upper Parliament-street*.
- April 18, 1864 Burne, Joseph, *Royal Insurance Office*, 1, *North John-street*, and *Higher Tranmere*.
- Nov. 12, 1866 Butler, Rev. G., M.A. Oxon, *The College, Liverpool*.
- *May 1, 1848 Byerley, Isaac, F.L.S., F.R.C.S., *Victoria-road, Seacombe*, TREASURER.
- Oct. 29, 1866 Byramjee, Dadabhoy, 14, *Cook-street*.
- Feb. 23, 1863 Callon, W. J., M.D., 125, *Islington*.
- Nov. 3, 1862 Cameron, John, M.D., M.R.C.P., Physician to the Southern Hospital, and Lecturer on Medicine at the Royal Inf. Sch. of Med., 17, *Rodney-street*.
- Jan. 9, 1865 Cariss, Astrup, *Cook-street*, and 6, *Hope-place*.
- April 7, 1862 Cawkitt, James M., *Underwriters' Room, Exchange*, and 23, *Queen's-road, Everton*.
- Dec. 2, 1861 Chadburn, William, 71, *Lord-street*.
- Dec. 1, 1851 Clare, John Leigh, 11, *Exchange-buildings*, and *The Old Hall, Aigburth-road*.
- Oct. 31, 1859 Clark, Charles, 17, *North John-street*, and *Linden Cottage, Rock Ferry*.
- Jan. 26, 1857 Clay, William, 97, *Sefton-street*, and 4, *Parkhill-road*.
- Dec. 2, 1866 Clay, Rev. Walton Lowe, *Parsonage, Rainhill*.
- Jan. 26, 1863 Commins, Andrew, LL.D. Dub., *Clarendon-chambers*, 1, *South John-street*.
- Oct. 6, 1862 Crosfield, Wm., jun., 9, *Temple-ct.*, and *Alexandra-drive, Ullett-road*.
- Nov. 26, 1866 Curtis, Rev. F. H., M.A. Oxon, *The College, Shaw-st.*
- Feb. 8, 1864 Cuthbert, J. R., 40, *Chapel-street*, and 40, *Huskisson-street*.
- Nov. 2. 1863 Dawbarn, William, *The Temple, Dale-street*, and *Mosley-hill*.
- Oct. 1, 1866 Dawson, Thomas, *Rodney-street*.
- Nov. 12, 1866 Davies, E., F.C.S., *The Laboratory, Royal Inst.*, *Colquitt-street*.
- Oct. 21, 1867 Dixon, Wm. Henry, 44, *The Albany*, and *Thornton Lodge, Hooton, Cheshire*.

- Mar. 9, 1868 Dixon, W., *North-mead, Seacombe.*
- Nov. 27, 1848 Dove, Percy Matthew, F.S.S., 1, *North John-street, and Cloughton.*
- Nov. 27, 1863 Dove, Jno. M., *Royal Insurance Office, and Cloughton.*
- Jan. 23, 1848 Drysdale, John James, M.D. Edin., M.R.C.S. Edin., 36, *Rodney-street.*
- Oct. 5, 1863 Drysdale, W. G., 7, *Elm-terrace, Beech-street, Fairfield, and 14, East side Queen's Dock.*
- Jan. 7, 1867 Drysdale, Donald M., 7, *Newbie-terrace.*
- Feb. 4, 1856 Duckworth, Henry, F.L.S., F.R.G.S., F.G.S., 5, *Cook-street, and 2, Gambier-terrace.*
- *Nov. 27, 1848 Edwards, John Baker, Ph.D. Gies., F.C.S., Messrs. Evans, Mercer & Co., 265, *Notre Dame-st., Montreal.*
- Oct. 29, 1866 Elliot Adam, *Ashlea, Aigburth-road.*
- Feb. 24, 1868 Elliot, John, 35, *Peter's-Lane.*
- March 10, 1862 Ellison, Christopher O., *Adelphi-chambers, South John-street, and Esplanade, Waterloo.*
- April 7, 1862 English, Charles J., 26, *Chapel-st., and 26, Falkner-sq.*
- Feb. 20, 1865 English, C. R., 26, *Falkner-square.*
- Nov. 27, 1865 Estill, Fred. Chas., 1, *Liverpool and London Chambers.*
- April 30, 1860 Fabert, John Otto William, 1, *Parliament-street, and 3, St. James' Mount.*
- Feb. 18, 1866 Fairclough, Rev. R. J., M.A. Cantab., 44, *Irvine-st., Edge-hill.*
- Oct. 31, 1864 Fearenside, William, 5, *Cook-street, and Seacombe.*
- *Dec. 13, 1852 Ferguson, William, F.L.S., F.G.S., *Oriel-chambers, and 2, St. Aidan's-terrace, Birkenhead.*
- Feb. 9, 1863 Finlay, William, Senior Mathematical Master, Middle School, *Liverpool College, and 49, Everton-road.*
- Oct. 1, 1866 Fletcher, Alfred, H.M. Inspector of Alkali Works for the Western District; *Whiston, Prescott.*
- Nov. 26, 1866 Flück, Christian, 1, *Montpellier-terrace, Upper Parliament street.*
- *Mar. 19, 1855 Foard, James Thomas, 5, *Essex-court, Temple, E.C.*
- *Feb. 6, 1854 Gee, Robert, M.D. Heidelb., M.R.C.P., Lecturer on Diseases of Children, Royal Infirmary School of Med.; Physician, Workhouse Hospital; 5, *Abercromby-square.*
- March 4, 1861 Ginsburg, Rev. Christian D., LL.D. Glasg., *Brooklea, Aigburth-road, PRESIDENT.*

- Feb. 20, 1865 Gordon, Rev. A., M.A., 49, *Upper Parliament-street*.
- Dec. 2, 1861 Graves, Samuel R., M.P., *Baltic-buildings*, and *The Grange, Wavertree*.
- Oct. 5, 1863 Gray, Jno. M'Farlane, 47, *Canning-street, Birkenhead*.
- Nov. 14, 1853 Greenwood, Henry, 32, *Castle-street*, and *Falkner-sq.*
- Jan. 22, 1855 Hakes, James, M.R.C.S., Surgeon to the Northern Hospital, *Hope-street*.
- Nov. 12, 1867 Halhead, W. B., 7, *Parkfield, Prince's Park*.
- Feb. 23, 1863 Hall, Charlton R. 17, *Dale street*, and 111, *Shaw-street*.
- Dec. 16, 1866 Hall, Hugh Fergie, Messrs. Charlton R. Hall & Sons, *Dale-street*.
- Feb. 18, 1867 Hallet, ———, M.D., S.S. "City of New York." (Inman Line.)
- *Jan. 21, 1856 Hardman, Lawrence, 5, *India-buildings*, and *New Ferry*.
- Feb. 9, 1863 Hart, Thos. Aubrey, M.A. Oxon, 81, *Bedford-street South*.
- Feb. 6, 1865 Hassan, Rev. E. *Alma-terrace, Sandown-lane*.
- Nov. 13, 1865 Hayward, John Williams, M.D., 117, *Grove-street*.
- Feb. 6, 1865 Hebson, Douglas, 13, *Tower-chambers*, and 58, *Bedford-street South*.
- March 6, 1865 Hey, John, M.R.C.S., 23, *Shaw-street*.
- Dec. 28, 1846 Higgins, Rev. H. H., M.A. Cantab., F.C.P.S., *Rainhill*,
VICE PRESIDENT.
- *Oct. 31, 1836 Higginson, Alfred, M.R.C.S., Consulting Surgeon to the Southern Hospital, 44, *Upper Parliament-street*.
- Nov. 16, 1863 Holden, Adam, 48, *Church-street*, and 6, *Carlton-terrace, Milton-road*.
- Nov. 13, 1854 Holland, Charles, 70, *Tower-buildings South*, and *Liscard-vale, New Brighton*.
- Mar. 9, 1868 Holme, James, Jun., 109, *Mount Pleasant*.
- *Dec. 14, 1862 Holt, Robert Durning, 6, *India-buildings*, and 2, *Rake-lane*.
- March 22, 1847 Horner, Henry P., *Cook-street*, and 5, *Devonshire-road, Prince's Park*.
- Feb. 24, 1868 Hughes, Lewis, 38, *St. Domingo Grove*.
- *Nov. 13, 1854 Hunter, John, Member Hist. Society, Pennsylvania, *Halifax, Nova Scotia*.
- Jan. 13, 1862 Hutchison, Robert.

- Jan. 26, 1857 Hutton, David, 3, *St. George's-crescent*, and 61, *Canning-street*.
- *April 29, 1850 Ihne, William, Ph. D. Bonn, *Villa Felseck, Heidelberg*.
- Feb. 23, 1857 Imlach, Henry, M.D. Edin., 1, *Abercromby-square*.
- Nov. 14, 1864 Imlach, Henry, jun., 1, *Abercromby-square*.
- *Oct. 21, 1844 Inman, Thomas, M.D. London, M.R.C.P., Physician
Royal Infirmary, 12, *Rodney-street*, and *Spital, Cheshire*.
- Nov. 28, 1864 Jeffery, F. J., *Compton House*, and *Woolton Hall, Woolton*.
- March 10, 1862 Johnson, Richard, *Queen Insurance Buildings*, and
Brookfield House, Seaforth.
- Jan. 26, 1863 Johnson, Richard jun., *Queen Insurance-buildings*.
- *April 4, 1852 Jones, Morris Charles, *Queen Insurance-buildings*, and
75, *Shaw-street*.
- May 5, 1851 Jones, Roger Lyon, *Liverpool and London-chambers, Exchange*, and 6, *Sunnyside, Prince's Park*.
- April 2, 1866 Jones, Rev. J. S., 3, *Clare-street*.
- Nov. 26, 1866 Jones, Edward, B.A., 1, *May-street*, Head Master of
Hibernian School.
- Feb. 24, 1868 Jones, Chas. W., Messrs. Lamport & Holt, 21, *Water-st.*
- Oct. 2, 1865 Kendal, Robinson, 5, *Canning-street*.
- Jan. 10, 1848 Lamport, William James, 21, *Water-street*, and 5,
Yellow Noses, New Brighton.
- *Jan. 14, 1839 Lassell, William, F.R.SS. L. and E., F.R.A.S., 27,
Milton-street; 58, *Wapping*.
- April 27, 1862 Lassell, William, jun., 27, *Milton-street*, and *Tuebrook*.
- Oct. 21, 1844 Lear, John, 14, *Cook-street*, and 22, *Holland-terrace, Duke-street, Edge Hill*.
- Dec. 10, 1860 Leyland, Joseph, *Williamson-square*.
- May 4, 1863 Lister, James, *Union Bank*, 6, *Brunswick-street*, and
Greenbank, 166, *Breckfield-road North*.
- Nov. 26, 1866 Long, Rev. R. England, 27, *Danube-st.*, *Smithdown-rd.*
- Oct. 20, 1859 M'Andrew, James Johnston, 24, *North John-street*,
and *Greenfield Cottage, Bromborough*.
- *Oct. 21, 1844 M'Andrew, Robert, F.R.S., F.L.S., *Isleworth House, Isleworth, London*.
- April 17, 1865 MacCheane, Wm., M.R.C.S., 69, *Shaw-street*.
- March 9, 1857 MacFie, Robert Andrew, 30, *Moorfields*, and *Ashfield Hall, Neston, Cheshire*.

- April 2, 1866 McMullen, James A., M.A. Dublin, *Huyton*.
- April 20, 1863 Marples, David, 50B, *Lord-street*, and 33, *Euston-grove*,
Cloughton.
- Feb. 24, 1868 Marsh, John, *Rann Lee*, *Rainhill*.
- Jan. 21, 1839 Martin, Studley, 30, *Exchange*, and 109, *Bedford-st. S.*
- Oct. 21, 1867 Muspratt, E. K., *New Hall*, 41, *Old Hall-street*,
and *Seaforth Hall*, *Seaforth*.
- Feb. 5, 1844 Mayer, Joseph, F.S.A., F.R.A.S., F.E.S., 68, *Lord-*
street, and *Pennant's House*, *Lower Bebington*.
- Feb. 18, 1867 Maye, Rev. H. S., B.A., Lond., *The College*, *Liverpool*;
63, *Everton Road*.
- April 1, 1861 Melly, George, 11, *Rumford-street*, and 90, *Chatham-*
street.
- Oct. 31, 1859 Moore, Thomas John, Corr. Mem. Z.S., Curator Free
Public Museum, *William Brown-street*.
- Nov. 10, 1866 Moore, Rev. W. Kennedy, M.A., 67, *Grove-street*.
- Jan. 8, 1855 Morton, George Highfield, F.G.S., F.R.G.S.I., 21,
West Derby-street, and 9, *London-road*.
- April 16, 1849 Moss, Rev. John James, B.A., *Upton*, *Cheshire*.
- Oct. 29, 1850 Mott, Albert Julius, *Church-street*, and *Sandfield*,
Waterloo.
- April 3, 1854 Mott, Charles Grey, 27, *Argyle-street*, *Birkenhead*.
- Nov. 27, 1865 Mountfield, William, 301, *Upper Parliament-street*.
- Oct. 20, 1856 Nevins, John Birkbeck, M.D. Lond., M.R.C.S., Lect.
on *Materia Medica*, Royal Infirmary School of
Medicine, 25, *Oxford-street*, VICE PRESIDENT.
- April 7. 1862 Newlands, A., 5, *Brown's Buildings*, and 19, *Peel-*
terrace, *Upper Canning-street*.
- Feb. 6, 1865 Newton, John, M.R.C.S., 13, *West Derby-street*.
- *Nov. 29, 1847 Nisbet, William, L.F.P.S.G., *Church-street*, *Egremont*.
- *Oct. 15, 1855 North, Alfred, 20, *York Crescent*, *Clifton*.
- Nov. 18, 1861 Nugent, Rev. James, *Crosby*.
- *Dec. 10, 1866 Owen, Peter, Messrs. Farnworth & Jardine, *Liverpool*
and *London Chambers*.
- Nov. 4, 1861 Philip, Thomas D., 49, *South Castle-street*, and 47,
Prospect-vale, *Fairfield*.
- Dec. 28, 1846 Picton, James Allanson, F.S.A., Chairman of the
Library and Museum Committee, 11, *Dale-street*,
and *Sandy-knowe*, *Wavertree*. VICE PRESIDENT.
- April 30, 1866 Praug, Rev. James, 29, *Mount-street*.

- *Jan. 22, 1866 Raffles, William Winter, 54, *Brown's Buildings*, and *Sunnyside, Prince's Park*.
- April 7, 1862 Rankin, Robert, Chairman of the Dock Board, 55, *South John Street*, and *Brombro' Hall, Cheshire*.
- †Mar. 13, 1812 Rathbone, William, 21, *Water-street*, and *Greenbank, Wavertree*.
- Nov. 12, 1860 Rathbone, Philip H., 4, *Water-street*, and *Greenbank cottage, Wavertree*.
- Mar. 24, 1862 Rathbone, Richard Reynolds, 11, *Rumford-street*, and *Laurel Bank, St. Michael's-road*.
- *Jan. 7, 1856 Rawlins, Charles Edward, jun., *Unity Buildings*, 22, *Lord-st.*, and 1, *Windermere-terrace, Prince's Park*.
- *Nov. 17, 1851 Redish, Joseph Carter.
- Dec. 10, 1866 Roberts, Rev. R. H., B.A., *Litherland-road, Bootle*.
- Feb. 4, 1867 Robinson, Jos. F., 5, *Bagot-street, Wavertree*.
- Feb. 9, 1863 Ronald, Lionel K., 19, *Dale-street*, and *Broad Green*.
- April 18, 1854 Rowe, James, 16, *South Castle-st.*, and 105, *Shaw-st.*
- Feb. 20, 1865 Samuel, Albert H., Messrs. Evans, Son, & Co., *Wood-street*, and *Canning-terrace, Upper Parliament-st.*
- April 7, 1862 Samuel, Harry S., 11, *Orange-court*, and 2, *Canning-street*.
- Nov. 13, 1864 Samuelson, Edward, 54, *Hanover-street*, and *Huyton*.
- Jan. 11, 1864 Samuelson, James, 18, *Dale-street*, and *New Brighton*.
- March 19, 1866 Sephton, Rev. John, M.A., *Liverpool Institute*.
- Nov. 16, 1863 Sheldon, E. M., M.R.C.S., 223, *Boundary-street*.
- Oct. 29, 1866 Shimmin, Hugh, 21, *Cable-street*, and *Tue-brook, West Derby*.
- Nov. 2, 1863 Skillicorn, John E., 7, *The Willows, Breck-road*.
- Nov. 7, 1864 Skinner, Thomas, M.D. Edin., 1, *St. James's Road*.
- *April 21, 1862 Smith, James, *Barkley House, Seaforth*, and 7, *Water-street*.
- †Mar. 13, 1812 Smith, James Houlbroke, 28, *Rodney-street*, and *Greenhill, Allerton*.
- Feb. 23, 1863 Smith, J. Simm, *Royal Insurance Office, North John-street*.
- Dec. 10, 1866 Smith, Elisha, Messrs. Henry Nash & Co., 5, *India-buildings*.
- Feb. 24, 1862 Snape, Joseph, Lecturer on Dental Surgery, Royal Infirmary School of Medicine, 75, *Rodney-street*.

- Nov. 12, 1860 Spence, Charles, 4, *Oldhall-street*.
- Feb. 10, 1862 Spence, James, 5, *Fenwick-st.*, and 10, *Abercromby-sq.*
- Nov. 27, 1865 Spola, Luigi, LL.D., 1, *Lully-Street, Grove-street*.
- Jan. 22, 1866 St. Clair, Wm., 4, *Trafalgar-road, North Egremont*.
- Jan. 13, 1868 Stearn, C. H., 3, *Eldon-Terrace, Rock Ferry*.
- Dec. 14, 1857 Steele, Robert Topham, 4, *Water-street*, and *Wavertree*.
- Nov. 12, 1866 Stephenson, Rev. H. M., M.A. Cantab., *The College, Liverpool*.
- Jan. 9, 1865 Stewart, Robert E., L.D.S., R.C.S., Dental Surgeon, Southern Hospital, and Liverpool Dental Hospital, 37, *Rodney-street*.
- Oct. 18, 1858 Stuart, Richard, 10, *Exchange-street East*, and *Brooklyn Villa, Breeze-hill, Walton*.
- *Feb. 19, 1855 Taylor, John Stopford, M.D. Aberd., F.R.G.S., 1, *Springfield, St. Anne-street*.
- Jan. 23, 1843 Taylor, Robert Hibbert, M.D. Edin., L.R.C.S. Ed., Lect. on Ophthalmic Medicine, Royal Infirmary School of Medicine, 1, *Percy-street*.
- Dec. 11, 1854 Thompson, Samuel H., *Thingwall Hall, Knotty Ash*.
- Nov. 17, 1850 Tinling, Chas., 44, *Cable-street*, and 34, *Onslow-road, Elm Park*.
- March 4, 1867 Topham, Jas. W., 156, *Chatham-street*.
- Dec. 1, 1851 Towson, John Thomas, F.R.G.S., Scientific Examiner, Sailors' Home, 47, *Upper Parliament-street*.
- Jan. 7, 1867 Trimble, Robt., *Riversdale-road, Aigburth*.
- *Feb. 19, 1844 Turnbull, James Muter, M.D. Edin., M.R.C.P., Phys. Royal Infirmary, 86, *Rodney-street*.
- Oct. 21, 1861 Unwin, William Andrew, 11, *Rumford-place*, and *Newbie-terrace*.
- Oct. 21, 1844 Vose, James Richard White, M.D. Edin., F.R.C.P., Phys. Royal Infirmary, 5, *Gambier-terrace*.
- Mar. 18, 1861 Walker, Thomas Shadford, M.R.C.S., 30, *Rodney-street*.
- Jan. 27, 1862 Walmsley, Gilbert G., 50, *Lord-street*.
- Jan. 9, 1865 Walthew, William, *Phoenix Chambers*, and *Vine Cottage, Aughton*.
- Dec. 2, 1861 Weightman, William Henry, *Leith Offices, Moorfields*, and *Hapsford-lane, Litherland*.
- April 7, 1862 Whittle, Ewing, M.D., Lecturer on Med. Jurisprudence, Royal Inf. Sch. of Med., 65, *Catherine-street*.

- Nov. 2, 1863 Whitty, W. Alfred, "*Daily Post*" Office, and 43,
Shaw-street.
- Jan. 13, 1868 Whitworth, Rev. W. A., B.A., 16, *Percy-street*, and
Queen's College, Liverpool.
- Dec. 16, 1867 Wilson, Rev. Andrew, B. A., Cantab., 14, *Queen-street*,
Edge Hill.
- Mar. 18, 1861 Wood, Geo. S., 20, *Lord-street*, and *Bellevue-road*,
Wavertree.
- Dec. 14, 1863 Zwilchenbart, Rodolph, jun., *Queen Insurance Buildings*,
and 26, *Bedford-street South*.

HONORARY MEMBERS,

LIMITED TO FIFTY.

- 1.—1812 Peter Mark Roget, M.D. Edin., F.R.C.P., F.R.S., F.G.S., F.R.A.S., F.R.G.S., &c., 18, *Upper Bedford-place, London.*
- 2.—1819 John Stanley, M.D. Edin, *Whitehaven.*
- 3.—1827 Rev. William Hincks, F.R.S.E., F.L.S., Professor of Natural History in University College, *Toronto, C.W.*
- 4.—1828 Rev. Brook Aspland, *Dukinfield, Cheshire.*
- 5.—1833 The Right Hon. Dudley Ryder, Earl of Harrowby, K.G., D.C.L., F.R.S., *Sandon-hall, Staffordshire*, and 39, *Grosvenor-square, London, W.*
- 6.—1833 James Yates, M.A., F.R.S., F.L.S., F.G.S., &c., *Lauderdale House, Highgate, London.*
- 7.—1835 George Patten, A.R.A., 21, *Queen's-road West, Regent's Park, London.*
- 8.—1835 William Ewart, M.P., *Cambridge-square, Hyde-park, London.*
- 9.—1836 The Most Noble William, Duke of Devonshire, K.G., M.A., F.R.S., F.G.S., &c., Chancellor of the University of Cambridge, *Devonshire House, London, W.*, and *Chatsworth, Derbyshire.*
- 10.—1838 George Biddell Airy, M.A., D.C.L., F.R.S., Hon. F.R.S.E., Hon. M.R.I.A., V.P.R.A.S., F.C.P.S., &c., Astronomer Royal, *Royal Observatory, Greenwich.*
- 11.—1840 James Nasmyth, F.R.A.S., *Penshurst, Kent.*
- 12.—1840 Richard Duncan Mackintosh, L.R.C.P., *Exeter.*
- 13.—1841 Charles Bryce, M.D. Glasg., Fell.F.P.S.G., *Brighton.*
- 14.—1844 J. Beete Jukes, M.A., F.R.S., M.R.I.A., F.G.S. Local Director of the Geological Survey of Ireland, 51, *Stephen's-Green, Dublin.*
- 15.—1844 T. P. Hall, *Coggeshall, Essex.*
- 16.—1844 Peter Rylands, *Warrington.*
- 17.—1844 John Scouler, M.D., LL.D., F.L.S., *Glasgow.*
- 18.—1844 Thomas Rymer Jones, F.R.S., F.Z.S., F.L.S., Professor of Comparative Anatomy, *King's College, London.*

- 19.—1844 Robert Patterson, F.R.S., M.R.I.A, *Belfast*.
- 20.—1854 Sir Charles Lemon, Bart. M.A. Cantab., F.R.S., F.G.S.,
Penrhyn, Cornwall.
- 21.—1844 William Carpenter, M.D. Edin., F.R.S., F.L.S., F.G.S.,
Registrar *London University*.
- 22.—1848 Rev. Thomas Corser, M.A., *Strand, Bury*.
- 23.—1850 Rev. St. Vincent Beechy, M.A. Cantab., *Worsley, near Eccles*.
- 24.—1851 James Smith, F.R.S.S.L. and E., F.G.S., F.R.G.S., *Jordan-*
hill, Glasgow.
- 25.—1851 Henry Clarke Pidgeon, *London*.
- 26.—1851 Rev. Robert Bickersteth Mayor, M.A., Fell. St. John's
College, Cantab., F.C.P.S., *Rugby*.
- 27.—1852 William Reynolds, M.D., *The Cloisters, St. Michael's*
Hamlet, Aigburth Road.
- 28.—1853 Rev. James Booth, LL.D., F.R.S., &c., *Stone, near Aylesbury*.
- 29.—1857 Thomas Jos. Hutchison, F.R.G.S., F.R.S.L., F.E.S.,
H.B.M. Consul, *Rosario*.
- 30.—1861 Louis Agassiz, Professor of Natural History in Harvard
University, *Cambridge, Massachusetts*.
- 31.—1861 William Fairbairn, LL.D., C.E., F.R.S., *Polygon, near*
Manchester.
- 32.—1861 Rev. Thomas P. Kirkman, M.A., F.R.S., *Croft Rectory,*
Warrington.
- 33.—1862 The Right Rev. H. N. Staley, D.D., Bishop of Honolulu,
Sandwich Islands.
- 34.—1863 Edward J. Reed, Chief Constructor of H. M. Navy,
Admiralty, and Hyde Vale, 3, Greenwich, S.E.
- 35.—1865 John Edward Gray, Ph. D., F.R.S., &c., *British Museum*.
- 36.—1865 George Rolleston, M.D., F.R.S., Linacre Professor of
Physiology in the University of Oxford, *Oxford*.
- 37.—1866 Cuthbert Collingwood, M.A. and M.B. Oxon, F.L.S.
- 38.—1867 J. W. Dawson, LL.D., F.R.S., F.G.S. &c., Principal and
Vice-Chancellor of McGill University, *Montreal*.
- 39.—1868 Captain Sir James Anderson, *Atlantic Telegraph Company,*
London.

CORRESPONDING MEMBERS.

LIMITED TO THIRTY-FIVE.

- 1.—1867 Albert C. L. G. Günther, M.A., M.D., Ph.D., British Museum,
Editor of the "Zoological Record."
- 2.—1867 J. Yate Johnson, *London*.
- 3.—1867 R. B. N. Walker, *Gaboon, West Africa*.
- 4.—1868 Rev. J. Holding, M.A., F.R.G.S., *London*.

ASSOCIATES.

LIMITED TO TWENTY-FIVE.

- 1.—Jan. 27, 1862 Captain John H. Mortimer, "America," (Atlantic.)
- 2.—March 24, 1862 Captain P. C. Petrie, "City of London," Commo-
dore of the Inman Line of American Steam
Packets. (Atlantic.)
- 3.—Feb. 9, 1863 Captain James P. Anderson, R.M.S.S. "Africa,"
Cunard Service. (Atlantic.)
- 4.—Feb. 9, 1863 Captain John Carr, (Bushby and Edwards,) ship
"Scindia." (Calcutta.)
- 5.—Feb. 9, 1863 Captain Charles E. Price, R.N.R., (L. Young
and Co.) ship "Cornwallis." (Calcutta and
Sydney.)
- 6.—April 20, 1863 Captain Fred. E. Baker, ship "Nippon."
(Chinese Seas.)
- 7.—Oct. 31, 1864 Captain Thompson, ship "Admiral Lyons."
(Bombay.)
- 8.—Oct. 31, 1863 Captain Edward Berry, ship "Richard Cobden."
(Chili.)
- 9.—Oct. 31, 1864 Captain Alexander Browne, (Papayanni,) S. S.
"Agia Sofia." (Mediterranean.)

- 10.—Oct. 31, 1864 Captain Whiteway, ship “Annie Cheshyre.”
(Pacific.)
- 11.—April 13, 1865 Captain Alexander Cameron, (Boult, English,
and Brandon,) ship “Staffordshire.” (Shanghai.)
- 12.—Dec. 11, 1865 Captain Walker, ship “Trenton.”
- 13.—Mar. 23, -1868 Captain David Scott.

TREASURER'S ACCOUNT, 1866-67.

Dr. *The Literary and Philosophical Society in Account with ISAAC BYERLEY, Treasurer, to October, 1867.* **Cr.**

	£	s.	d.
To paid Mr. Marples, for Printing	50	0	0
" Mr. Tinling, for Printing and Stationery	15	16	0
" Secretary's Expenses of Management, viz.,			
Postages, Messengers, and Small Items	£3	2	10
Messrs. Townshend & Son's Account	1	3	0
Delivery of Circulars and Notices	6	18	3
Editorial fee	10	10	0
	21	14	1
" Mrs. Johnson's Account for Tea, Coffee, &c.	20	2	0
" Collector's Commission	7	14	0
" Waiters' Attendance	2	2	6
" Phipps and Fenton, Lithographing Dr. Edwards' Address	2	10	0
	119	18	7
Balance carried down	325	14	3

£445 12 10

Errors excepted.

Audited and found correct, { J. A. PICTON.
WM. UNWIN.

	£	s.	d.
By Balance from last Account—			
Dock Bonds	£250	0	0
In Treasurer's hands	2	10	4
	252	10	4
" Annual Subscriptions	164	17	0
" Arrears	2	2	0
" Entrance fees	14	3	6
" Interest upon Dock Bonds	12	0	0

£445 12 10

Dock Bonds	£250	0	0
In Treasurer's hands	75	14	3
	£325	14	3

PROCEEDINGS
OF THE
LIVERPOOL
LITERARY AND PHILOSOPHICAL SOCIETY.

ANNUAL MEETING — FIFTY-SEVENTH SESSION.

ROYAL INSTITUTION, OCTOBER 7th, 1867.

The REV. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

The minutes of the last meeting of the fifty-sixth session were read and signed, after which the HONORARY SECRETARY read the following

REPORT.

The Council of the Literary and Philosophical Society, in presenting their report for the fifty-sixth session, find themselves again in the pleasant position of being able to congratulate the members upon the success which continues to attend the proceedings of their Society. Every meeting of the last session was well attended, and the papers which

were presented called forth discussions which in one instance had to be adjourned to a subsequent meeting.

The Council feel that it is a subject of much regret that the Volumes containing the most important of these communications, extending over the last two sessions, are not yet in the hands of the members. Their publication has been delayed by circumstances entirely beyond the control of the council, but arrangements have now been made by which both volumes will be issued forthwith.

At the same time the Council are of opinion that the prompt publication of the Society's Transactions depends in a great measure upon those members who favour the Society with communications having their papers ready for the press immediately after they are read; they therefore regard the suggestion which was communicated to the Society during the last session, that the papers should be published periodically during the session in which they are presented, as of considerable importance, and one which, if it can be realised, will prevent the Society from falling in future into such arrears.

The Society has during the session received an addition of thirty-five new members, whilst it has lost by removals from the town, or other circumstances, only ten, leaving the number of the ordinary members two hundred and twenty-four.

The more important objects of the Society, in the promotion of literature and science, have received an additional stimulus in the creation of the new class of Corresponding Members, which is to consist only of those who, being actively engaged in literary or scientific pursuits, or in geographical exploration, will be likely to contribute valuable communications to the Society's Proceedings, or adopt its Volume of Transactions as a vehicle for imparting the results of their researches. Three gentlemen, who had already favoured the Society in this respect, have been admitted to this new class;

one Honorary Member has been added to the thirty-eight previously on the roll, and the number of Associates remains as before, namely thirteen. The grand total of the Society's Members thus amounts to two hundred and seventy-nine.

At the suggestion of your Council an application has been made to the British Association, on behalf of all the local societies, together with the Mayor and Corporation, requesting that body to hold its Annual Meeting for 1869 in Liverpool. The answer to this application cannot be definitively given before the next Annual Meeting of the Association, which will take place in Norwich; but there is every reason for believing that the application will be successful.

With one exception, already mentioned, no important change has taken place in the constitution of the Society, as the slight alteration in the hour of commencing the business of each meeting, though affording greater convenience to the members, does not demand more than a passing mention in this report.

The "receptions" continue to maintain their popularity, and have infused much cordiality and vigour among the members.

Your Council have now to conclude their Report with the recommendation of the following five Gentlemen for election on the new Council, in conformity with the 36th law:—The Rev. John Sephton, M.A.; and Messrs. John M'Farlane Gray, Morris C. Jones, G. H. Morton, F.G.S., and Albert J. Mott.

It was then moved by Mr. A. J. Mott, seconded by Mr. Robinson, and resolved, "That the Report now read be received and adopted."

The Treasurer then submitted the Annual Statement of Accounts, which was unanimously passed, on the motion of Mr. Higginson, seconded by Mr. Marples.

The Society next proceeded to elect the officers for the year and the following gentlemen were appointed:—

Vice-Presidents :

Mr. J. A. PICTON,
Dr. NEVINS,
Rev. H. H. HIGGINS.

Treasurer :

Mr. I. BYERLEY.

Hon. Secretary :

Mr. JAMES BIRCHALL.

Members of Council :

Mr. HIGGINSON,
Rev. W. B. BANISTER,
Mr. ARCHER,
Mr. MOORE,
Mr. M'FARLANE GRAY,
Mr. M. C. JONES,
Mr. G. H. MORTON,
Mr. A. J. MOTT,
Rev. J. SEPHTON.

The Associates were then re-elected, on the recommendation of the Council.

FIRST ORDINARY MEETING.

ROYAL INSTITUTION, 21st October, 1867.

DR. NEVINS, VICE-PRESIDENT, in the Chair.

The Minutes of the last Meeting were read and signed.

Messrs. E. K. Muspratt and William Henry Dixon were unanimously elected ordinary members.

Mr. Christian Flück exhibited a flint saw, a knife made of bone, bone pins, piece of roebuck horn, and other implements, recently found in a Lacustrine dwelling in the lake of Morat, in Switzerland.

Mr. T. J. Moore exhibited some bones of the Dodo, lately presented to the Free Public Museum, by Mr. Walmsley Stanley, per Mr. R. C. Doyle and Mr. J. T. Towson; also the cast of the under jaw of a Mastodon, the original of which, with the greater part of the skeleton, was lately discovered near Albany, New York. The cast was presented to the Museum by Professor Hall, state geologist at Albany, and was brought to Liverpool by his son, Mr. C. E. Hall, who was present at the meeting. Mr. Moore read the following extract from a letter from Mr. R. B. N. Walker, Corresponding Member of the Society:—

“ R. Fernan Vas, Camma, July 13, 1867

* * * “ On the 26th ult., a few days after my arrival here, one of the men who had accompanied me into the interior came to see me, and asked for powder and ball to enable him to fulfil his promise of shooting a gorilla for me.

He being a professed gorilla hunter, and having once killed no less than four of those apes in one day, I immediately gave him what he required. He went out the next day, but was unable to meet with the object of his search, and for various reasons was prevented trying again until the 6th instant, when, on rising early in the morning, he heard the cry of a gorilla in the bush close to his village, and immediately started, accompanied by another lad, who was unarmed, with the exception of a hatchet to clear a passage through the dense bush. Guided by the noise made by the animal, the hunter soon obtained a view of him, and fired, wounding him severely in the right shoulder, and breaking one of his huge canine teeth. Reloading he fired again, striking him on the back, and breaking one or two of his ribs. The animal was unusually tenacious of life, and my man, having become separated from his companion, who carried part of the ammunition, had to go in search of him to procure some powder; when he returned, and at the sixth shot, the gorilla gave up the ghost. The spot where he fell was two or three miles from the house I am living in, and people had to be fetched to carry the huge beast, yet by 9.30 a. m. he was brought to my door. He proved to be a good sized fellow, a male, but not nearly so large as the one whose skeleton I presented to the Derby Museum, but nearly, if not quite, as large as the fine specimen given by Mr. Duckworth to the same institution. Now, as the hunter was only out twice in search of a gorilla, and on the second occasion soon met with and shot one, not three miles from the sea, and close to a village, I am confirmed in my previously entertained opinion that gorillas are by no means so difficult to obtain as has been represented, especially here at Camma, during the rainy season, when the fruit of the Mbimo tree is ripe.

“R. B. N. WALKER.”

Mr. F. J. Jeffery, F.G.H.S., called attention to the proposed visit of the British Association to Liverpool in 1869, and suggested that it would be desirable to hold a Centenary Festival in commemoration of the births of the great men born in 1769, in conjunction with the visit, should the Association accept the invitation which had been sent; and seeing the names of illustrious foreigners which appear on the list, he proposed that the celebration should be international. Among the names mentioned were those of Wellington, Napoleon I., Sir T. Lawrence, Humboldt, Cuvier, Forsythe, the inventor of percussion caps; Arndt, the German poet; Marshals Soult and Ney, Rev. W. Jay, of Bath, Sir M. I. Brunel, and the younger Watt, the Engineers.

The following paper was then read :

ON THE LIMITS OF GEOGRAPHICAL KNOWLEDGE IN THE ELIZABETHAN AGE.

By JAMES BIRCHALL.

THE Elizabethan age was so prolific of oceanic discoveries, and the knowledge of the earth's surface in almost every degree of latitude was subject to such constant variation, that it must appear, at first sight, a somewhat paradoxical task, to determine limits which were apparently so uncertain, and which were being yearly extended. But, although the information which Europeans possessed of foreign countries was necessarily confined within the shifting bounds of maritime discovery, there existed certain established impediments, which absolutely kept within fixed limits, for a time, that geographical knowledge which, had it been free of these, must have enlarged itself as discoveries extended. It is, therefore, my object in this paper, not to dwell so much upon the question of how much of the earth's surface was known, or unknown,* but rather to review the principles of Physical Geography as they were then understood, to note the methods of observation adopted by those who, by their travels, were favoured with opportunities of informing themselves of the extent and condition of other countries, and to examine the speculations of those who, not having such opportunities, or it being impossible to have them, sought to account by theory for the occurrence of the various phenomena which surrounded them.

* It is proposed to investigate this question (chart making and chart knowledge) in a subsequent paper.

The age now brought under review, comprehending the sixteenth and first half of the seventeenth centuries, belongs to those rare periods in human history wherein the achievements of mankind in every department of human effort burn with heroic glow, and are productive of the most momentous revolutions. In this illustrious age, the European world combined in one grand and determined effort for freedom of thought and freedom of action, and for an enlarged arena worthy of the exercise of both. The deliverance from feudal servitude and theological restraint which then resulted awakened in men's minds those long dormant powers which presently had full scope; the speculative philosophy of the School-men was soon displaced by an ardent love of experiment and curiosity of observation, and new fields were eagerly explored for the discovery of new facts and new existences. A wonderful accession was thus made to the number of natural productions; and the sudden increase in the necessities of nations, which thence arose, gave such an impulse to commerce and the arts, that the love of gain also co-operated with the desire for intellectual progress, and numerous expeditions were equipped, and even lonely journeys made by daring adventurers, for the express purpose of opening out new markets, and tracing out new routes through countries which had not been traversed since the times of Marco Polo, and the brothers Zeni.

The necessity for extended geographical knowledge, which was thus experienced by merchants, led to the publication of numerous books of voyages, atlases, and other works on cosmography, and the maritime countries of Europe, with their interests involved in colonisation, felt bound to grant state encouragement to the study of geography by the appointment, as in Spain and the Netherlands, of royal geographers, whose duty it was to obtain all the most authentic

information concerning lands beyond the sea, and publish the same in charts for the use of navigators and traders.

Yet with all these inducements to promote the study of so important a subject, the advancements made in geographical science were scarcely perceptible; and it is an exceedingly singular fact, that while commercial success depends most materially upon the possession of an accurate knowledge of the earth's surface, there is no department of human inquiry which has made such slow advancement, or received an enlightened study at so late a stage of its history. For successive centuries, such scholars as Europe could boast placed childlike faith in the opinions of the ancient geographers, and the world at large accepted what its scholars taught. The Ptolemaic system of Cosmography was the belief of learned and unlearned even almost to our own day. This is unmistakeably shown in the map of the world, published by Speed in 1651. Around the two hemispheres is a series of pictorial diagrams, descriptive of the theories at that time entertained concerning the constitution of the universe, and certain terrestrial phenomena. In one of these, we have the Eudoxian system of Aristotle, and the Ptolemaic system, plainly set forth. According to these theories, which are practically one, the heavenly bodies were supposed to be set like gems in hollow orbs (or shells) composed of crystal, so transparent that no interior orb concealed from view the orbs which lay beyond. The sun and planets had each its separate orb; and beyond all was the *primum mobile*, the *first moveable heaven*, which revolved daily, from east to west, and carried along with it all the other orbs. Above the whole spread the *grand empyrean*, or *third heavens*, the abode of perpetual serenity.

The centre of this extraordinary celestial machinery was the great round world, set immoveable in the midst. "Thou hast made the round world so sure that it cannot be moved

at any time," was the Elizabethan translation of the Psalmist's words, the translators, as we may infer, from this and numerous other passages, being evident believers in the philosophy thus set forth. It is well known that Bacon maintained these opinions; and we have a curious illustration of them, in the Latin verse which the Westminster scholars set up on the mainmast of the ship in which Drake had navigated the world. "Sol nescit comitis, non memor esse sui" they wrote, "The sun himself could not forget his fellow traveller;" meaning thereby that Drake had, like the sun, made the circuit of the globe. So also Massinger, in his play of *The Duke of Milan*, when he would express utter disbelief, puts this exclamation in the mouth of Marcellia ;

" If thou wouldst work
Upon my weak credulity, tell me rather
That the earth moves, the sun and stars stand still,
The ocean keeps nor ebbs nor floods."

Our natural surprise, therefore, at the papal treatment of Galileo, who as early as 1610 was imprisoned for maintaining a contrary doctrine, so repugnant to the senses and the common interpretation of Scripture, ought to be considerably abated in presence of the universal belief. Later still, even, we find numerous passages in *Paradise Lost*, asserting the Ptolemaic principles, and especially in the well known lines in the eighth book, wherein Adam asks of Raphael the explanation of natural phenomena, and the poet enters into an elaborate argument upon the principles of the Ptolemaic and Copernican systems, apparently in doubt as to which is the home of truth.

In this diagram we also perceive another remarkable conception, entertained throughout the middle ages, and still existing in the Elizabethan age. This idea was derived from the *Geographia Nubriensis*, of Edrisi the Arabian, 1154, and

represented the world as consisting of half land and half water. The latter surrounds the former in a continued circuit, or zone, in which the earth floats like an egg in a basin of water. Absurd as these ideas are to us, to whom has been revealed the grand simplicity of nature, "Heaven's easy, artless, unencumbered plan," they are exceeded in absurdity by the views of Cosmas, an Egyptian monk of the sixth century, who, in order to refute the impious doctrines, as he deemed them, of those who taught that the world was a globe, maintained that it was a plain oblong, surrounded by an immense wall, which supported the firmament or azure vault of heaven. The succession of day and night was the effect of a great mountain in the northern part of the earth, behind which the sun concealed itself every evening.

With the exception of this curious fancy, however, the Aristotelian theory of the sphericity of the earth was generally held throughout the sixteenth century, like the other great principles of the Greek philosopher, whose doctrines alone were orthodox in philosophy, and the schools of the middle ages. His idea, indeed, that the coasts of Spain were not very far from those of India, must have startled many a slumbering thought in the minds of the reflective, and awakened in the adventurous a frequent longing for the means of testing its truth. And this must have been especially the case after the publication of the travels of Marco Polo, who had visited countries much further to the East than the limits assigned by Ptolemy to the Asiatic continent, and upon whose statements, Martin Behaim, royal geographer to John II., of Portugal, had represented in his globe, the coasts of Zipangu, or Japan, to be no further from Africa than a sixth of the earth's circumference. In this globe, as well as in the maps of Andrea Bianco, the Azores were placed between Africa and Zipangu, which tended still further to diminish, in popular estimation, the distance of open

ocean to be traversed by navigators. "It is no part of the object of this paper to enter into any account of the discoveries of Columbus, or other American explorers; but it may be mentioned that these ideas of the sphere, and of the supposed nearness of far distant countries, were the original stimulants to the famous series of voyages in discovery of the N. W. passage. Sebastian Cabot, in the report he made to the Papal Legate in Spain, distinctly states this; "understanding," he says, "by reason of the sphere, that if he should sail by way of North West, he should by a shorter tract come into India."

The globularity of the earth was therefore an undisputed tenet in the sixteenth century, but the only knowledge of its motions was that derived from Ptolemy, whose hypothesis so readily explained to the senses all the phenomena then known, namely, the apparent diurnal motion of the stars, eclipses, and comets. With one exception, those phenomena, which can only be explained by the Copernican theory of terrestrial motions, were discovered long after the age now under review; a circumstance which of itself sufficiently accounts for the slow reception of the principles of Copernicus, interfering, as they did, with so many prejudices, and incapable of that kind of proof which the world generally demands. This exceptional phenomenon was the extraordinary length of the Polar day and night at the solstices, which from the earliest times was the theme of wonder to travellers. Thus Pytheas of Marseilles, a Greek navigator, who flourished before the time of Alexander the Great, reported of Thule that, at the summer solstice, the sun did not set for four-and-twenty hours. Some centuries later, Tacitus writes—"In the furthest parts of Britain, the nights are so clear that you can hardly tell when daylight begins or ends; and when the sky is not overcast with clouds, you may see all night long the light of the sun, which does not rise or

go down, but moves quite round." So also Marco Polo speaks of a country beyond Tartary, "which extends to the utmost bounds of the North, and is called the region of darkness, because during most part of the winter months the sun is invisible;" and further on, he mentions "the summer season, when they enjoy continual light."

The voyage of William Barentz, who was sent out by the Dutch government in 1594, to discover a N.E. passage to Cathay and India, affords the most remarkable instance during this period of the knowledge which Europeans possessed of the solstitial day and solstitial night. This navigator set sail in the spring of 1594, and arrived at Spitzbergen, which was then first discovered, in time to avail himself of the summer solstice, during which to prosecute his discoveries. After reaching Nova Zembla, he was compelled to return, but the ice had already closed in upon the expedition, and Barentz prepared to pass the winter in that dread abode of darkness and desolation. On the 4th of November, the last rays of the sun forsook them, and with these it was remarked as a singular fact, that the bears disappeared, and the white foxes came in great numbers. On the 27th of January, the entire disc of the sun was visible above the horizon, to the surprise of Barentz, who did not expect its appearance for a fortnight, though it appears that his calculation was a week in error. The obliquity of the ecliptic to the earth's equator was known from the ancient times, but whether this Polar phenomenon was further known to be the result of this obliquity is questionable. It cannot be asserted, indeed, of any age of the world's history, that men were unobservant of the various wonders which nature in her successive changes was constantly presenting to their wondering eyes; the Book of Nature was ever open to them, and all could see, though few could understand.

But unable as philosophers were, from their ignorance of

the true process of scientific investigation and of the instruments necessary to correct observation, to comprehend the natural phenomena of the seasons, and the planetary changes which they record, they were not inactive in their speculations concerning the physical constitution of the universe. Famous among those whose conjectures on this subject were best known in the sixteenth century, was Jordano Bruno, who published three works in the form of dialogues, professed to have been written in England, under the patronage of Leicester, Walsingham, and Sidney. In the first of these, "*La Cena de la Ceneri*," Jordano propounded a physical theory of the world. He adhered to Copernicus' theory of terrestrial motion, and despised gravitation as an absurd hypothesis, all natural motion being circular. He had some glimpse of the composition of motions, asserting that the earth had four simple movements, out of which one was compounded. In the second work, "*Della Causa Principio ed Uno*," Jordano propounded a system of Nature. The world was animated by an omnipresent, intelligent soul, which was the only physical agent, that called out the plant from the seed and matured the fruit; that lived in all things, though the things themselves might not seem to live. This soul was thus the first cause of every form that matter could assume; forms being only the accidents of matter. Form and matter were therefore like unto male and female. The first form and the first matter, and all the forms generated therefrom, made but one being—the infinite unchangeable universe in which everything existed, which was all things, and no one thing separately. The third work, "*Dell' Infinito Universo*," asserted the infinity of the universe and the plurality of worlds. The stars were suns, shining by their own light, and each had its revolving planets. To maintain these theories, however, was then a capital offence in the eyes of the Church, equally

with the profession of those of Copernicus, which few believed.

The great system which prevailed in the scientific world, during the seventeenth century, until the Newtonian philosophy gained undisputed preeminence, was the Cartesian theory of Descartes. Besides the matter which composed terrestrial bodies, this remarkable philosopher maintained the existence of two other kinds; one, very subtle, constituting the substance of the heavens, and the other, still more subtle, filling up the intervals not occupied by the first. The elementary atoms of these two ethereal substances, by perpetually rubbing against each other, caused an increase of particles, which, not being required to fill up vacuities, flowed towards the centre of the system, and became the sun. Round this centre the whole mass was whirled in a number of distinct vortices, each of which carried a planet along with it. Centrifugal motion impelled every particle to fly off from the centre; and in the origin of things, myriads of particles thus escaped beyond the system, but there formed a denser sphere, which prevented the escape of others which came after. The effect of these later particles endeavouring to escape was *light*.

The motion of the vortices in this theory was not reconcilable with the relation between the revolutionary periods and distances of the planets ascertained by Kepler, about the same time; but the hypothesis concerning the nature of light as a subtle ether, having a vorticose motion round the sun, so much ridiculed by the followers of Newton, became, in after years, a favourite speculation among scientific thinkers.

The grand cause which seems to have generated into mental life these remarkable systems of cosmography in the sixteenth and seventeenth centuries was doubtless the launching of the Copernican theory upon the philosophical world in 1543. That theory, attempting to explain the ordinary

natural phenomena by principles so apparently contradictory of the effects perceived, must have compelled scholars to pause and reflect, notwithstanding the contempt with which they first received it. Thus Tycho Brahe, in order to reconcile the apparent testimonies of sense and Scripture with the new theory,—which he could not altogether disprove, yet was unwilling to believe,—suggested a middle course, by supposing the five planets to move round the sun, and all these with the moon to move round the earth.

Comets, those harbingers of ill to the awe-struck world, were pronounced under the Aristotelian system to be simply meteors, generated below the orbit of the moon—a doctrine which had even Galileo for a disciple. But when the earth had ceased to be regarded as the centre of the universe, truer views began to be entertained of these also, and the appearance of one in 1577 induced Tycho to observe its path, and to ascertain that it went far beyond the lunar orbit, and even penetrated the supposed solid firmament which environed the stars, of Ptolemy's theory. And thirty years later, Grassi, the Jesuit, profiting by the Danish astronomer's calculation, ascertained their orbits to be vast ellipses, having the sun for their chief focus.

The knowledge of Gravitation, at a time when so much learning had to be surrendered as false, and so much that was new and strange demanded an acceptance, must have been subject to the same uncertainty of speculation. Under the system of Aristotle, it was impossible for such a theory to exist; but when the universe was despoiled of its orbs of crystal and the *primum mobile*, and the planets were pronounced to be globes, flying bird-like through space, some theory, which should explain by what influence they were bound together as a system, must have been felt to be a necessity. Yet Copernicus had no idea of this principle, and we have seen that Bruno, one of his earliest and most emi-

nent disciples, rejected it as an absurd hypothesis. On the other hand, it is exceedingly remarkable that the Arabians, in the middle ages, maintained a principle of universal attraction, which they professed to have derived from the writings of the Pythagorean disciples. Caswini, one of their geographers, thus asserted that the earth turned unceasingly; that it was suspended in the universe equally distant from all points, and that the firmament attracted it on all sides so as to maintain it in a perfect equilibrium.

The clearest conjectures in the Elizabethan age on this subject were propounded by Godwin, an Oxford student, in a work published by him in 1638, called "The Man in the Moon."

In this he gives an account of the supposed journey of one Domingo Gonzales to that planet, and distinctly states that the earth's attraction diminishes with the distance.

The Cartesian theory of vortices was entirely at variance with this grand principle, and we therefore find Descartes, the author of that theory, rejecting gravitation with contempt. To conceive this, he observes, "we must not only suppose that every portion of matter in the universe is animated, and animated by several different souls, which do not obstruct one another, but that those souls are intelligent, and even divine; that they may know what is going on in the most remote places, without any messenger to give them notice, and that they may exert their powers there." These remarks may appear to us very quaint, and even absurd, but it must be remembered that this was the style of thought and philosophical reasoning, in an age which was so barren of observed facts as that in which Descartes lived, whose mind, moreover, was more speculative than mathematical, more strongly tinged with poetic and romantic ideas of Nature, derived from a pseudo-scientific contemplation of the universe, than with the arguments and conclusions of strict philosophical investi-

gation. Superior to him in mathematical inquiries, was Blaise Pascal, to whom has been lately attributed the first actual discovery of the principle of gravitation, a statement, however, which has been exploded almost before it has had time to circulate through one half of the learned societies of Europe.

Another Englishman, who distinguished himself as a pioneer in the path of physico-geographical investigation, was Dr. Gilbert, physician to Queen Elizabeth and James I., and one of our earliest Copernicans. The magnetism of the earth was his own original hypothesis, for the truth of which he relied on the analogy of terrestrial phenomena to those exhibited by an artificial spherical magnet. His work on this subject was first published in the year 1600, and was entitled, *Of the Magnet, or Loadstone, and Magnetical bodies, and of that great Magnet, 'the Earth.'* In this treatise, he reviewed the history of all that had been observed and written on this subject before his time, by Harriot, Hues, Wright, Kendal, Norman, and Barlow, the latter of whom was the first who explained the use of the inclinatory for the purposes of navigation (1597). Gilbert then arranged the magnetic phenomena he had observed, with regard to attraction; the polarity of the needle, its variation and declination, and the use of the latter in finding latitude, according to the method previously laid down by Mr. Norman, but which Halley, in a subsequent age, proved to be a false calculation. This great discoverer, however, was mainly indebted to the researches of Gilbert, for the knowledge he acquired of the variations of the needle, and their application to latitude and longitude.

Immediately on the publication of Gilbert's work, observations were made by English navigators in support of his theory of terrestrial magnetism. In 1608, Henry Hudson, during the course of his second voyage round the North of Europe and Asia, made many interesting observations with

the dipping needle or inclinatory, and Captain Fox in the previous year, while sailing in Hudson's Straits, observed that the needle became sluggish or insensible; a phenomenon which he ascribed "to the sharpness of the air interposed between the needle and his attractive point." Before we leave this interesting point, it may be mentioned, as an instance of its importance to the navigator, that Columbus had almost lost the honour of being the discoverer of America, through his ignorance of it. As he sailed westward, he found the needle, instead of being true to the pole, gradually deviating more and more to the northwest, a circumstance which the mariners attributed to a loss of virtue in the compass, and therefore considered it a most decided reason why they should return home.

It thus appears that there were not wanting, in the Elizabethan age, men eager to observe, and bold to speculate—but the great desideratum was the knowledge of a correct method of observation. Before the inductive philosophy of Bacon found acceptance, it was impossible to attain this knowledge, for principles were laid down irrespective of observed facts; they were not established laws, the results of systematic observation, and ascertained phenomena, but mere theories and speculations. According to this scheme of human learning, the earth was fancifully divided into eighteen climates, which commenced at the Equinoctial line, and extended northward and southward to the limits at which the world was supposed to be rendered uninhabitable by the cold. These limits were arbitrarily fixed at the sixty-fifth degrees of latitude, beyond which lay "thrilling regions of thick ribbed ice," the exclusive abode of lost souls, condemned to hang there in "contorted chains of icicles."

When the voyages of the northern navigators began to penetrate into these dreary zones, such popular superstitions, so frequently alluded to by the poets and dramatists of the

day, must have been rapidly dispelled; but the artificial division of the globe into climates, and into habited and uninhabited regions, reveals to us that Elizabethan geographers had no knowledge of what we understand by the Fauna and Flora of a country. Aristotle's *History of Animals* still formed the foundation of their knowledge of Natural History; and although his fabulous animals were rejected by naturalists, they continued to place the hippopotamus among aquatic animals, and the bat among birds. The fauna of the countries round the Mediterranean were best known; but as the New World became further explored, the new animals it revealed, like the opossum, the manati, the guinea pig, the glutton and the armadillo were included in the chief works on zoology. The accounts of these, however, were so largely mixed with fable, and the tales of travellers were so extraordinary, that the term "geography" became synonymous with the expression, "the wonders of the world." The following provision among the regulations made by William of Wykeham, for the management of his college at Oxford, will illustrate this. "When in winter, on the occasion of any holiday, a fire is lighted for the fellows in the great hall, the fellows and the scholars may, after their dinner or their supper, amuse themselves in a suitable manner, in the great hall, with singing or reciting poetry, or with the chronicles of different kingdoms and the wonders of the world, and everything that befits the character of the clergy."

On such an evening, the travels of Marco Polo must have furnished marvels in abundance for the recreation of the fellows. His curious story of the fish in the lake of Geluchalat, which never made their appearance before the first day of Lent, and continued to abound till Easter Eve, after which they disappeared till the next arrival of the fasting season—all which they did to accommodate the pious monks of St. Lunardo, who had a convent in the vicinity. His

description, again, of the desert of Lop, on the north east of China, must have sent many a sensitive hearer trembling with fear to his lonely pallet. Speed fully adopts this description as accurate, in his map of China, inserting the following note where the desert is marked: "In the desert of Lop or Belgian, men are thought to be seduced by wonderful illusions and devilish spitting."

Another legend among these geographical marvels, which was an article of faith in the Elizabethan age, and had been handed down at least from generation to generation, was the existence of men "whose heads do grow beneath their shoulders," and of other races who had faces like dogs. The people of the island of Andaman, says Polo, "are a most brutish and savage race, having heads, eyes and teeth resembling those of the canine species." "The people of Budtan," said Ctesias, the contemporary of Xenophon, "are black, with the head and nails of a dog, and with tails." Compare these statements with Sir Walter Raleigh's account of the Acephali, whom he heard of, but did not see, in Guiana, dwelling on the banks of the river Arni. He does not doubt, he says, the fact of their existence, for "though it may be thought a mere fable, yet for mine own part" he observes, "I am resolved it is true, because every child in the provinces of Aromaca and Canuri affirm the same. They are called Ewaipanoma; they are reported to have their eyes in their shoulders, and their mouths in the middle of their breasts, and that a long train of hair groweth backward between their shoulders. . . . Such a nation was written of by Mandeville, whose reports were holden fables many years; and yet, since the East Indies were discovered, we find his relation true of such things as heretofore were incredible. . . . When I came to Cumana, in the West Indies, afterwards, by chance I spake with a Spaniard, dwelling not far from thence, a man of great travel, . . . who, being

esteemed a most honest man of his word, and in all things else, told me that he had seen many of them." Humboldt met with equally clear accounts of these monsters, from the natives of the American Llanos, who asserted that they had seen the Rayas, as they were then named; and he says further that he found it dangerous to doubt the veracity of his informants.

Keymis, the companion and friend of Raleigh, in a subsequent voyage he made to Guiana, also found, as he believed, another race of monsters, who had "eminent heads, like dogs, and lived in all the daytime in the sea;" and others called Pariagotos, who made themselves invulnerable by eating white stones, which were found in the mountain in which they dwelt.

While, therefore, such intellects as Raleigh not only circulated, but fully credited, such absurd fables concerning the natural history of man, we shall not be surprised that equally extraordinary accounts were given of animals. Thus Raleigh describes the Armadillo as having "*a white horn growing on his hinder parts, as big as a great hunting horn, which they use to wind instead of a trumpet.*"

Again, in the account of the three voyages of Barentz to the Arctic Ocean, we read that the adventurers found at Nova Zembla "a multitude of red geese, of which it was never known till this time where they hatched their eggs; so that some men have taken upon them to write that they sit upon trees in Scotland that hung over the water, and such eggs as fall from them down into the water become young geese, and swim there out of the water; but those that fall upon the land burst in sunder and are lost." It was near Nova Zembla that Thomas Hilles and Robert Rayner, two of the sailors in Hudson's second voyage to the North, 1608, saw a mermaid, which he thus describes. "One of our company, looking overboard, saw a mermaid, and calling up some of the com-

pany to see her, one more came up, and by that time she was close to the ship's side, looking earnestly on the men; a little after, a sea came and overturned her. From the navill upwards her backe and breasts were like a woman's (*as they say, that saw her*); her body as big as one of us; her skin very white, and long haire hanging downe behind, of colour blacke; in her going down they saw her taylor, which was like the taylor of a porposse, and speckled like a macrell." Hudson evidently was not so credulous as Raleigh; for while the latter, with his customary vehemence of expression, warrants the truth of the statements he makes, and anticipates with contempt the scoffs of the sceptical, Hudson cautiously relieves himself of any responsibility for the origin of the story, by adding, "as they say that saw." There is no circumstance in the lives of either of these famous men so pointedly characteristic of their respective and widely different tones of mind and thought.

The last illustration I give of the information concerning geographical fauna, collected by Elizabethan travellers, is taken from the account of Drake's voyage round the world. When his expedition reached the Island of Celebes, his men landed, and spent four weeks ashore repairing their ship. "The island was covered with woods, and amongst the trees, night by night, through the whole land, an infinite swarm of fiery worms did show themselves, flying in the air, whose bodies being no bigger than our common English flies make such a show and light, as if every twig and tree had been a burning candle. In this place breedeth also wonderful store of bats, as big as large hens; and, better than such ugly poultry, a kind of crayfish, of such a size that one was sufficient to satisfy four hungry men." These crayfish were evidently land crabs, and "they are" continues the account, "utter strangers to the sea, living always on the land, where they work themselves earths; or rather they dig huge caves

under the roots of the largest trees, where they lodge by companies together. Sometimes, when we came to take them, for want of other refuge, they would climb into the trees to hide themselves, where we were enforced to follow them."

From these and other examples which could be adduced, —for the voyages of Hakluyt, Purchas, and other collectors abound in them,—it is readily to be seen that while travellers were eager to collect facts, and extend the limits of human knowledge, they were as yet mere children in scientific observation; they gazed at everything with all that bewildered astonishment which marks the observations of childhood, exaggerating the mysteries of things which they saw but could not comprehend, and lending a credulous ear to every tale, which to them was always the more credible in proportion to the contrast it presented to their own experience of natural life. With all the facts and fables thus collected by so numerous a multitude of travellers, those who observed with any scientific perception, or with the object of classifying and arranging the knowledge they obtained, were few and far between. The first man who seems to have perceived a great typical uniformity in nature, was Belon, who travelled through Egypt and the Levant in the sixteenth century; and our own countrymen, Ray and Willoughby, at the close of the next century, were the first zoologists who made use of comparative anatomy. These two scholars, finding the history of nature very defective, agreed between themselves to travel through Europe, and reduce the several tribes of animals and plants to a method, and to give accurate descriptions of the several species, from a strict survey of them. They dissected every animal, of which they gave an account, and divided all animals into two classes; those with blood, breathing through lungs, and those without blood, breathing through gills. Their researches, however, do not belong to

the period now under review; but so much has been stated to show that, as their works were the standard of zoological information at the close of the seventeenth century, when the establishment of the Royal Society had marked an era in the history of scientific investigation, Elizabethan knowledge of this subject must have been very imperfect and obscure.

The science of botany, and its relation to geographical flora, appear to have been better understood than zoology. Attempts were made to acclimatise plants; and botanical gardens, containing the finest productions of Asia and America, were established in the chief cities of France and Italy before the end of the sixteenth century. The classification of plants according to their organs of fructification was generally adopted; the works of Gesner and Belon, and Dr. Turner's *New Herbal*, published between 1551 and 1568, being the chief authorities. Botanists, however, entertained very confused notions of the order of species of plants; they still relied more upon the works of the ancients than upon their own researches; they often made very bold assertions upon no other authority than simple theory; and those who travelled for the purpose of acquiring geographical knowledge, frequently gave the most fanciful accounts of the plants they had seen in foreign lands.

I have now passed under review some of the salient points in the principles of physical geography, as they were understood in the Elizabethan age. From all that has been advanced, it will I think be seen that the limits which confined the knowledge of these may be emphatically described in these two words, credulity and speculation. Where human intellect was unable to penetrate through the mists which shrouded the causes of natural phenomena from men's bewildered understanding, it was not afraid to supply the lack of knowledge with the boldest and most extraordinary conjectures. Side by side with this eagerness to discover that

which was unknown, there existed a pertinacious attachment to old opinions—an almost unconquerable reluctance to surrender the teachings, false as they were, which former ages had bequeathed. This is one of the paradoxes of this age of paradoxes—an extreme deference to authority, yet an avidity for new theories; an unquestioning faith in the veracity of ancient fables, yet a persistent opposition to the truth of principles which all natural phenomena, then and since observed, have established as eternally true. This remarkable paradox is accountable only by the fact that the Elizabethan age was one of transition, in philosophy, as well as in politics and religious doctrines. Old modes of thought and fashions of reasoning were gradually fading away, and being replaced by new arguments, and a keener perception of the essence of things. Every department of human inquiry was being sifted and questioned; and just as men's minds were prone, or otherwise, to receive deductions, there arose the two great sections,—those whose finer sense convinced, or love of novelty induced them to believe every new speculation, every fresh account of travellers; and those with whom an implicit belief in the teachings of their fathers was a cherished sentiment, and who therefore lent a ready ear to the most absurd stories, when they contributed to the confirmation of the ancient legends; but who, on the other hand, resolutely rejected a theory, merely because it was destructive of all previously received ideas on the same subject. These appear to me to be plain and fair conclusions, from the various facts and speculations I have described in this paper, and I feel that they are capable of being very much further developed, did leisure admit of my entering into so important a subject.

SECOND ORDINARY MEETING.

ROYAL INSTITUTION, NOVEMBER 4th, 1867.

The REV. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

Messrs. J. Fenwick Allen, and J. Bramwell, were unanimously elected ordinary members.

The President then referred to the loss which the Society has sustained in the death of Dr. Birkenhead, expressing his hope that some member of the Society, intimately acquainted with Dr. Birkenhead, would prepare a short notice of his life, to appear in the Society's *Proceedings*.*

Mr. Astrup Cariss then read the preliminary portion of a paper on

ORGANISATION IN PHILANTHROPIC WORK, WITH
SUGGESTIONS HAVING SPECIAL REFERENCE TO
LIVERPOOL.

* A Memoir of Dr. Birkenhead will appear in the next annual Report of the Society.

THIRD ORDINARY MEETING.

ROYAL INSTITUTION, November 18th, 1867.

The Rev. H. H. HIGGINS, M.A., VICE-PRESIDENT,
in the Chair.

Mr. H. W. Biggs was unanimously elected an Ordinary Member.

Mr. T. T. Moore exhibited a fine stuffed specimen of the Tatou, or giant Armadillo (*Priodontesgigas*), lately added to the Free Public Museum.

The Rev. H. H. Higgins made some meteorological observations illustrative of the old adage—

The evening red, and the morning grey,
Are two fine signs of one fine day.

Mr. B. L. Benas exhibited a copper coin, about 3lb. weight avoirdupoise, of the reign of Frederick, King of Sweden, 1745, which was issued because of the scarcity of silver and gold, and passed current for one dollar.

The following Paper was then read :—

ON CRIMINAL RESPONSIBILITY.

By EWING WHITTLE, M.D., M.R.I.A.,

LECTURER ON MEDICAL JURISPRUDENCE TO THE LIVERPOOL ROYAL
INFIRMARY SCHOOL OF MEDICINE.

I VENTURE to bring the subject of criminal responsibility before this Society, in the hope of directing attention to certain anomalies that exist in, or rather between the theory and the practice of, the law of England on the subject. Broadly stated, the theory of the law is, that every man is responsible for his actions, unless at the time of committing any offence he is of unsound mind to an extent which renders him incapable of judging between right and wrong.

Now, if we turn to the practice of the courts, we shall find that this theory is continually set aside; for instance, we find cases of persons arraigned on the charge of committing atrocious crimes, who are perfectly aware of the wickedness of the act, and who are nevertheless acquitted on the ground of insanity on very meagre evidence; on the other hand, we have similar cases, in which, notwithstanding the strongest evidence to show the prisoner's insanity, he has been convicted and sentenced, being held responsible for his crime to the fullest extent; as an example of the first, I will instance the case of Mary Cullen, who was indicted at the Wexford Summer Assizes, 1846, for the murder of her brother, whom she had poisoned by arsenic, put into a mess of porridge; four persons who partook of the porridge died. The prisoner was acquitted on the plea of *moral insanity*.

On this case, Dr. Geoghegan, of Dublin, remarks, "no

indication of mental unsoundness was discoverable on careful examination, either by the physician to the gaol or by myself, nor (as I am informed by a late visitant of the lunatic asylum) has the prisoner since shown any signs of insanity" (written in 1851). "If not traceable to other influence, the crime may have been committed under that condition of moral perversity not uncommonly observed in the hysteric state. Whether such disturbance of the affective *faculties* only should absolve from criminal responsibility has been lately the subject of much and subtle discussion amongst psychologists; nor is the question as yet satisfactorily adjusted." Side by side with this case, I may allude to that of Oxford, who is even now confined for life as insane, on account of having fired a pistol at her Majesty many years ago; the proof of insanity in his case was of a very meagre character: the real cause of his acquittal on the ground of insanity, being evidently the unwillingness of the jury to consign to the gallows a weak-minded and vain young man, carried away by a morbid desire for notoriety and attempting a great crime, which happily was unattended by any serious consequences except to himself. In opposition to these cases, I will now instance the cases of the wretched man Jeffries, and of the man Clarke, who in 1862 murdered the tax-collector in Newcastle-on-Tyne. Jeffries, without being in any respect insane intellectually, appears to have been driven to murder his child under the pressure of a persistent impulse, which at last became irresistible. He was condemned and executed. Clarke, of Newcastle, though admitted to be insane, was convicted, and would have been executed but for the energetic action of the public and the pressure made on the Home Office.

The point which I seek to establish by these cases is, that the English law is defective, in not recognising degrees of responsibility; I hold that we have frequently cases of

criminals who have the power to a certain extent, but to a *certain extent* only, of resisting the promptings to crime ; we have a familiar example of this condition of mind in suicides, who have long been oppressed by the persisting impulse to commit self-destruction ; who have long fought against, and even taken precautions against it, such as requesting friends to have razors and other things, which they might use for the purpose of self-destruction, removed out of their way ; and yet these very people are in some cases carried away by an impulse which at last becomes absolutely beyond their control, and they consummate the act of self-destruction, perhaps tempted by the accidental presence of a razor, a rope, or a pool of water. Now I maintain the proposition, that there frequently is in some criminals the same partial control over their impulses to commit crimes, even murder ; that this partial control is often successful ; then it never comes before the public ; in other cases the struggling will is overpowered by the morbid impulse, and the crime is committed. I will briefly cite one case in illustration of this point. A young woman was attending an old lady as half nurse and half companion ; she was for the most part employed in reading to her, chiefly tales of horror, or newspaper accounts of murders. After some time she became affected with a desire to strangle the old woman ; there was no offence taken by her, no cause of quarrel, not the shadow of a motive ; yet she felt this impulse growing upon her to such a degree, that at last she fled to an asylum, told the circumstances, and begged to be taken in. It was found that she was suffering from derangement of the digestive organs, consequent on her close attention to the old lady, but there was no mental affection whatever. She completely recovered in a short time. Place in this young woman's stead, a person of less energetic will, and the denouement would, in all probability, have been the commission of a horrible crime, as

without meaning as the wildest act of any maniac. These are the sort of cases in which I think it would be wise in the law to recognise a degree of minor responsibility. This principle in criminal law is not a novelty. It is recognised both by the Prussian common law, and the Austrian penal regulations. In French law, though not avowedly admitted, the principle is accepted in their verdicts of *extenuating circumstances*. It may be said that the English law does recognise degrees of criminality, in its distinction between murder and manslaughter; true, it does so, but these are degrees in criminality, and not in responsibility; but if murder, arson or theft is committed, the criminal is assumed by the law to be sane, and consequently fully responsible for his acts; if the prisoner be defended on the ground of insanity, it is for the defence to prove, to the satisfaction of the court and jury, that the prisoner was so far of unsound mind as not to be able to distinguish right from wrong; the practice generally is for the court to be satisfied if it can be proved that the prisoner is the subject of delusion. The consequence is that very vicious prisoners are sometimes acquitted, on the ground of insanity, and so escape all punishment for their crime, except the loss of their liberty; while, on the other hand, prisoners have been executed who, though not proved to be intellectually insane, may have been as incapable of resisting the impulse to murder as a wild animal is to resist the instinct which impels it to seize upon its prey. It is difficult to give an instance of these cases, for after the man is hanged, it is then too late to prove his insanity. But in the case of Dove, who was hanged for poisoning his wife with strychnine, we have an instance of a man, whose intellectual condition was not much above that of an idiot, and whose moral faculties seemed wholly undeveloped, and who seemed to be led to poison his wife, merely by hearing the gossip in public houses about Palmer's murders,

and, in committing the crime, being, apparently, as little actuated by mind as a monkey is in playing any of its mischievous tricks. Now, though it be necessary that such a wretch should be confined for life,—and I think useful, that he should also be subjected to other punishment, judiciously applied,—I think it neither tends to the edification nor advantage of society that such a wretch should be hanged as a criminal. The adoption of this principle of limited responsibility in law, would involve to some extent, the recognition of moral insanity as an actual disease: that it is in any sense a special disease, is, I admit, denied by very high authorities; among others by Caspar, who argues that crimes of this kind are either caused by a high degree of depravity, or that the criminal is really insane, and driven to commit the crime either from excited fancy, or from being carried away by a fixed idea. He cites the case of a lady, who was tormented for a long time by the fixed idea that she must kill her governess, a lady with whom both she and all the family were on terms of the closest intimacy and affection. By Caspar's advice, this lady was taken on a lengthened tour through France and Italy, away from the governess: she returned home quite well, cured of her fixed idea, or of her moral insanity, whichever you choose to call it. Caspar states that she was throughout perfectly free from disease, either bodily or mentally; but I think most persons will agree with me that this fixed idea indicated for the time a diseased condition of the moral faculties.

A further argument may be derived from the fact, that moral is generally one of the earliest symptoms of intellectual derangement. I met, in my own practice, with a case in which a woman made several attempts to murder her children; she showed no symptom of intellectual derangement; she was confined in an asylum for a short period, but

continued so well that at the end of three months she was discharged. She continued well for about three years, and then became insane, and in a few weeks from the commencement of the attack she committed suicide. In this case the diseased condition of the affective faculties, in the first instance, was the primary manifestation of what ultimately proved to be complete insanity. We have, besides, good evidence to show that this affection sometimes exists in a violent degree associated with bodily disorder, and that in these cases it has a very close analogy with epilepsy. Reil thus describes such a case: "the paroxysm generally begins with all kinds of corporeal phenomena, a pressure exists at the pit of the stomach, shuddering through the whole body, the tongue is loaded, there is a sensation of burning heat in the bowels, the heat rises upwards to the chest, neck or head, there is a singing and buzzing in the ears, the patient often warns those about him, and entreats to be prevented from doing mischief, the countenance becomes flushed, the arteries of the head and neck throb violently, at length the excitement extends to the brain, and at this moment arises the blind irresistible impulse to murder, commit suicide, arson, or some other outrageous act, just as epilepsy ensues when its preliminary *aura* has reached the brain."

I will now proceed to give some heads of the history of a lunatic, whose disease for many years was solely characterised by moral perversity, and a desire to shed blood, there being so little intellectual derangement that, during these years, he pursued the different occupations of a joiner, a printer, a schoolmaster and a publisher; he was afterwards, for twenty years, the most remarkable and the most dangerous inmate of the Royal Edinburgh Asylum. The first symptoms of derangement which he showed, were an uncommon degree of querulousness, and the summoning of boys and others to the

police court, on frivolous charges : on these charges being dismissed, he became impressed with the idea that he was treated with injustice, and that the magistrates and the public in general were combined against him ; he frequently gave utterance to violent threats, and at last began to collect arms, and also to fortify his house against the police ; as he felt instinctively that his proceedings were likely to bring upon him a visit from those officials. On one occasion he said "that, if he could just get blood shed, he would be satisfied, but that he must kill somebody."

After being confined for short periods and at considerable intervals in two asylums, he was finally committed as a dangerous lunatic in 1841, he being then about 53 years of age. Two months after he made a murderous attack on the doctor with a shoe-maker's knife. He was then removed for greater security to Morningside Asylum, where the superintendent treated him with great kindness and consideration ; he was granted as much freedom within the walls as was consistent with his safe custody, was allowed writing materials for making out a detailed history of his case ; his taste for music was encouraged, and he was allowed to conduct the psalmody at morning prayers. At first this treatment seemed beneficial, and, though still vowing vengeance against his enemies in general, he used no threats against the officials of the asylum ; however, after about a year, he began to direct his threats chiefly against Dr. Mackinnon and his assistant, both of whom he declared he would murder. Accordingly he was more carefully watched, but withal he managed to pick up a rusty piece of iron about the ground ; this he secretly fashioned into a sort of dagger, and on one occasion that the doctor happened to enter the ward, the attendant being absent, Smith rushed upon him and stabbed him in the back. Dr. Douglas, the assistant physician, came to the rescue, and he too was severely

wounded: though there were many wounds, none of them were dangerous. Smith always gloried in this murderous attack, and lamented that he had not been more successful; he also told afterwards that many times, when Dr. Mackinnon was conducting morning prayers, and he was sitting near him as precentor, he could scarcely keep from rising and braining him with the chair he was sitting on. After this he made many violent attacks upon the attendants; one I will instance, on account of the remarkable amount of cunning which he displayed; he picked up some cuttings of lead, which had been dropped by some workmen doing repairs; these pieces of lead he kneaded into a ball, and with this, by the aid of bits of string, shoe laces, and scraps of handkerchief, he contrived to make a heavy life-preserver. As he was closely watched, the secret fabrication of this weapon must have occupied him for many months; when the weapon was ready for use, Smith stationed himself behind the door of his room, quietly waiting for the entrance of the night visitor; as the man opened the door, Smith put his foot against it so as to let it only half open; the man upon this naturally leaned forward, to see what prevented the door opening, on which Smith, calculating on the movement, struck him a heavy blow on the head with the weapon. The man, though badly hurt, succeeded in overpowering him. He made many such attempts; on one occasion, he gave notice that on the 12th of the following month he would kill one of his attendants. Such was the terror inspired by this threat, from the perseverance, cunning, and ferocity which it was known he would use to fulfil his purpose, that it became necessary to have recourse to personal restraint. He continued in this state for many years, his mental powers gradually deteriorating, but always manifesting a persistent and unquenchable desire for revenge and blood. If out of doors Smith had consummated any of these crimes which he

attempted in the asylum, he would have been held responsible to the fullest extent, as knowing right from wrong, which he clearly was fully able to discriminate.

Dr. Skae relates the case of a woman, who came to the asylum to consult him; she said that every day, as soon as her household work was over, and she had nothing to occupy her attention, she was seized with an almost irresistible desire to murder her children. She lamented the horrible feeling, and could in no way explain it, for she loved them tenderly, but was obliged daily to leave them in the house, and walk up and down before the door, till her husband returned from his work, lest the murderous impulse should prove too strong for her if she remained beside them.

I take from Esquirol, a case "in which fits of homicidal insanity, succeeded to regularly recurring epileptic attacks. From his eighth year he was subject to epileptic fits; at 25 his disease changed in character; instead of fits, he was at intervals seized with an irresistible desire to commit murder; he had sometimes a presentiment for some hours before, and earnestly begged to be bound with chains, lest he should commit some crime. He said, when it takes me, I must kill, I must strangle, were it only an infant; his father and mother, whom he tenderly loved, were the first victims of these attacks; during the fit he retains the consciousness of his own existence, and knows perfectly that in committing murder he is guilty of a crime. The fit lasts from one to two days; when it is over, he says, Release me; alas, I have suffered greatly, but I have got out of it well, since I have killed no one."

W. Gilbert, a contributor to *Good Words*, argues that, among the criminal classes, there are instances of this kind, and he leans to the opinion that they are of the character of demoniacal possession. It is a curious fact that many of

these criminals speak of themselves as being possessed. A lady visitor to Millbank prison, describes a woman subject to these attacks, who, the night before, in a paroxysm of unprovoked fury, had broken her iron bedstead to pieces. When asked "how she possibly could have strength to do it," her reply was, "Oh, ma'am, I did it easily then, but I could not do it now; when the devil is in me, I could break up one twice as strong as that." Another would tear away the iron railings out of the fastenings in the stone steps, and, when confined in a dark cell, would tear up the flooring with her hands; she was always aware of the approach of an attack, and, when not suffering from the paroxysm, was generally a quiet well-conducted person.

Another girl, about twenty years of age, is given as an instance; she had been in prison nineteen times since she was 17, all for violence of temper and unprovoked assaults of an outrageous character; she was of good moral character, and quiet and well-behaved when not in one of her paroxysms; without any provocation she would commit the most outrageous acts of violence, and scream in her cell for hours together; when remonstrated with, she would say, "I feel I can't be good, the devil is in me to-day." In all these cases, no trace of intellectual derangement can be detected.

This writer gives an instance of an eminent clergyman, who was for years tormented by an inclination to murder his own child, a little girl, whom he passionately loved; he succeeded in curing himself of this feeling, by having resort to earnest prayer, always recurring to prayer whenever he was visited by the evil suggestion. This is a striking instance, in an educated man, of the disease of the emotional faculty, being cured by the training of, and the judicious exercise of the faculty of will. The wise exercise of the judgment in this case, proving conclusively the absence of any intellectual aberration.

To multiply cases would be only wearisome, so I proceed to consider the consequences which attend the anomalies in law and practice that I have endeavoured to set clearly before you. The first evil effect on society is, that whenever a great crime is committed, there is immediately a strong effort made to establish the insanity of the prisoner; all who are opposed to capital punishment join in this effort, as being the only chance of averting what they consider a public scandal; all those (particularly medical men) who hold strong opinions upon the bad policy of executing men of weak minds, put forth their strength on these occasions; on the other hand, the fourth estate and the strict legalists clamour against the prejudices of the MAD DOCTORS; and the result is, that the course of justice becomes scandalised, and is not unfrequently perverted. We have had a notable instance of this lately in the case of the wretched foreigner Bordier, who was executed for the murder of his paramour; a strong feeling was excited in his favour on this ground, a feeling to which Professor Laycock gave the weight of his opinion, and to which Dr. Wood, of Bethlehem, in some measure leaned, though he does not pretend to say that he considered Bordier irresponsible; he says, "I believe the great majority of insane persons are in a certain sense responsible. This is no matter of opinion, it is the unanimous conviction of every medical man who has had anything to do with the insane, that the vast majority know the difference between right and wrong; and it is the possession of this knowledge, and the consequent responsibility which it involves, which enables us to treat them as rational beings, and to exercise necessary control, without recourse to those repressive means which were believed to be essential, when insane persons were looked upon as necessarily irrational and irresponsible."

I do not believe that there were any good grounds for urging the plea of insanity in Bordier's case; jealousy appeared to be the exciting cause, and there seems to have been no reason to doubt that he was ardently attached to his unfortunate victim; he also suffered from a depressing physical ailment, which might to a certain degree have made him irritable, irascible, and less able to govern his passions; but, though this argument was insufficient to establish the plea of insanity, there were I think elements in his case which might have justified the admission of a minor degree of responsibility: 1. the absence of adequate motive; 2. his weak state of bodily health; 3. his imperfect education, evidenced by the total absence of moral training; and, finally, the probably low development of his moral faculties.

Whatever different opinions may be entertained about this case, all must admit that these discussions, continually recurring, tend to throw great discredit on the administration of our criminal law.

The cases and the arguments that I have laid before the Society will warrant, I believe, the following conclusions:—

1. That the common dictum of lawyers "that the power or capability of distinguishing between right and wrong, on the part of the criminal, should be the sole test of responsibility" is erroneous, and founded on ignorance of the true nature of mental disease.

2. That the legal idea, "that if it be proved that a criminal has delusions, it should be assumed that he does not know the difference between right and wrong," is also founded on error.

3. That, owing to the prevalence of the above erroneous ideas, insane criminals have been cruelly executed; and, *vice*

versá, that great criminals have been sometimes acquitted on insufficient grounds.

4. That the administration of the criminal law is not infrequently scandalised, on the one hand, by the *summum jus* being harshly enforced against criminals of weak or impaired intellect; and, on the other hand, by atrocious criminals escaping the punishment due to their crimes, through the sympathy of a prejudiced jury, or the easiness of the Home Office under the pressure of prejudiced philanthropy.

5. That moral insanity should be recognised as a diseased condition, and as such entitling the criminal to be held responsible in a minor degree: (the degree of this responsibility to be determined by the court, with medical assistance, rather than by the jury.)

6. The admission of degrees of responsibility generally, in dealing with crimes of all sorts.

Finally, it is necessary to say something on the subject of medical testimony. Unless the mode of laying medical evidence before our courts be completely changed, it would be hopeless to carry out the reforms which this paper suggests. You are aware that the present custom is for either side to bring forward one or more medical men, more or less eminent, as the case may be, to speak to the medical aspects of the case, on behalf of either side: and it almost invariably happens that the court and the jury have to determine between the conflicting medical views advanced on either side, which often confuse them so much, that, not infrequently, the medical evidence is virtually ignored, and the case decided on its non-medical aspects. You will easily understand that the introduction of the principle of, what I may call, limited responsibility would vastly increase this confusion.

It would be foreign to the subject of this paper to attempt to explain fully the causes which lead to so much confusion in the matter of medical evidence; the fact is generally admitted and lamented by the profession, while it is often a subject of ridicule with the public. I will merely observe, that a medical man, brought into court by any particular party, will be naturally biassed in his favour, and his opinion be perhaps warped, though he may not himself be conscious of it. The remedy which I would suggest for this evil would be the adoption of the Prussian system of applying medical testimony to the elucidation of truth in all legal inquiries. By this system, all medical questions are referred to one or more medical men, who make a full report on the case, stating minutely, in language as free as possible from technical terms, their opinion of the medico-legal aspects of the case; also the grounds on which this opinion has been formed; and in some cases the process of investigation, or the train of reasoning on which their conclusions are based, are given in full detail. On these data the court and the jury ground their judgment on the medico-legal aspect of the case, and, if they think it necessary, examine the witnesses, *vivâ voce*.

The difference between the present British system and the Prussian being virtually this: by the British system, each party to the suit, whether the case be criminal or civil, has the medical features of the case, which appear to favour their own plea, placed in as strong a light as possible before the Court, at the same time keeping back any feature which militates against them: the court and jury being left to sift, as well as they can, the truth out of a mass of conflicting evidence and clashing theories, too often extemporised for the express purpose of confusing the jury, and preventing their giving due weight to the really salient points in the medical evidence. On the contrary, by the Prussian system,

the medical aspects of the case are carefully sifted by the medical referees; the wheat is separated from the chaff, and what is of value to the issue is gleaned, and presented to the court in such a state, that both judge and jury can appreciate it, and accord to it its true value along with any other evidence in the case.

Lastly, one word as to an objection, which, it strikes me, is very likely to be made, to the principles which I have endeavoured to enunciate in this paper; that is, that these principles tend towards the abolition of capital punishment. To introduce this element into the discussion, would be rather foreign to the subject of the paper; but in anticipation of such an objection being made, I merely wish to observe, that I am prepared to admit the justice of such an impeachment, but hold notwithstanding that the principles which I have now laid before you, are sound and well worthy of adoption.*

* While the foregoing article was in the hands of the printer, a medical friend has furnished me with the particulars of two cases which have been lately under his care, and which appear to him to corroborate strongly some of the views that I have put forward. One is that of a young man who is not long married, and who was for some time tormented by a persistent suggestion that he should murder his wife, to whom at the same time he was most tenderly attached; he had always been well conducted, and had by his good conduct gradually worked himself from an humble beginning into a very respectable position; he was of a religious turn of mind, and much given to reading. The idea first arose in his mind in this way: he happened to be reading what is called a sensation novel, being at the time rather in depressed spirits, and came upon a passage in which a wife-murder was described. The idea occurred to him, Could it be possible that he should do such a thing? He immediately shut the book and endeavoured to shake off the feeling; nevertheless he was continually tormented by the suggestion; he had recourse to earnest prayer; this had a good effect for the time, but the fixed idea still grew upon him, and in all probability a horrible *denouement* would have resulted, if he had not been placed under careful medical advice and treatment. By these means he became quite restored to perfect health. Now all the time that he was pursued by this morbid idea, he was in intellect perfectly sane; he attended to all the details of an active employment; he knew perfectly well that the action, if committed, would be a great crime, and that if he had been carried away by an irresistible impulse, and had committed the offence, he would, according to law, have been hanged. This is a well-marked example of true moral insanity; the intellect was perfect, but the moral faculty of self-control was diseased; in the

end he recovered completely, without ever manifesting any symptom of intellectual derangement.

The other case was that of a lady, who, having been married very young, after having several children, got into a weak state of bodily health; then she began to treat her children capriciously, to call them reproachful names, for which she would directly after express her regret, and burst into tears. At this time there was no intellectual derangement; but gradually this became manifested. In this instance the moral disease occurs as a forerunner of the mental affection.

These two cases illustrate forcibly what I have set forth, as to the distinction which should be drawn between moral depravity and moral insanity.

FOURTH ORDINARY MEETING.

ROYAL INSTITUTION, 2nd December, 1867.

The Rev. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

The Rev. Walton Lowe Clay, M.A., was unanimously elected an Ordinary Member.

Mr. Morton, F.G.S., exhibited a specimen of *Ammonites oxynotus*, from the lias formation of Gloucester, remarkable on account of its being converted into iron pyrites, and showing the original thickness of the shell.

The following Paper was then read :—

ON CERTAIN CONTRADICTORY OR ABNORMAL PHENOMENA OF THE AGE.

BY THE REV. J. S. JONES.

HARDLY second in importance to the memorable precept, "know thyself," would be the counsel to "know thine age." To see, in due light and proportion, "the age and body of the time, its form and pressure," if it will not add to our knowledge of ourselves, will contribute to our power to use ourselves for the common good.

I have ventured to put together some thoughts concerning certain characteristics of this age, which, amongst others, afford matter for either simple remark, as noteworthy, speculation, as interesting, or reflection, as important.

None of these, perhaps, are more remarkable than the coincidence of *Luxury* and *Energy*. Whatever dangers are incident to a luxurious civilisation are ours in an unprecedented degree. Armies of conquest and armies of circumstance have given us empire. An unique history and education have given us power. Natural advantages, utilized by strong heads and hands, have given us wealth. A visit to an International Exhibition, or the Crystal Palace, would fill a citizen of any other age with wonder at the resources which could create, and the industry which could produce, treasures so infinite for the use and enjoyment of a multitude so vast. And, appalling as the contrast would be when he saw the darker side of the picture, the contrast itself would derive much of its suggestiveness and sad-

ness from the wide diffusion of those very results of wealth, out of the want or misuse of which the misery would be seen to grow. And these material facts would be seen to be but the indices of deeper ones; of a growth of refinement in the minds of those who asked for, and the hand and brain of those who produced, these needs or adornments of home. And the observer would perhaps fear that with the special skill of the creator, and the growing comfort and complacency of the possessor, attenuation and effeminacy might come. And so has it generally been. The moralist dwells with unction, and the philanthropist with something like despair, upon the spectacle of states mounting vigorously the hill of prosperity, only to drag the device "excelsior" listlessly down the sunny slopes of the other side. Antony in the arms of Cleopatra is a type, as well as a history. The career of rude independence is run by a race in youth, and the honours of victory won in manhood, only to be followed by inglorious age. It would be, indeed, a sad decree of fate, if the stream of national life, springing from a rocky cradle, strengthening and deepening in its course, till able at length even to struggle with the sea, must disperse at last into shallows among sheltered vales, and grow stagnant, and dry away.

But if Macaulay's New Zealander is inevitable, he will not, judging by present appearances, owe his picturesque sketch to a degenerate race having lapsed into effeminacy. Fops and idlers there will always be: vices will cling to the skirts of civilisation, and lay claim, sometimes only too justly, to be its offspring. But we are proving that civilisation may be strong, and we will not believe but it may be pure. The great struggle in America has revealed an unsuspected capacity in this age for toil and sacrifice. Its history would be a hundred Iliads. It had, it is true, its hardy Western elements, and the adventurous Texan

or Kansas man contributed his part. But the Southern fire burst the silken bonds of Southern luxury ; and the studious halls and quiet homes, as well as the farms and stores, of cultivated New England sent forth the ruddy and the pale into the ranks of war ; while women, tenderly cherished and delicately framed, gave themselves and not seldom their lives to the work. And though we may hope to be spared the proof of what our volunteer army is capable of, we have no reason to fear that advanced civilisation has slain the Titan within us. What may not yet be accomplished by a race which courts the toils of war, that it may enjoy the fruits of peace ; which adds the vigour of Rome republican to the wealth and comfort of Rome imperial ; which, having a literature and arts of which it has no cause to be ashamed, bids its students contend in manly exercises ; whose aristocracy wrestle with its democracy for the prizes of faithful service of the common land ? Strong and successful, industrious and refined, there is no manifest reason why it should not be Rome and Macedon, Athens and Venice in one.

Another characteristic of the age is to theologians of course of especial interest. If any one were to describe the age as an age of inquiry, few would be disposed to dispute the definition. But it would probably be almost as correct to describe it as an age of faith. Faith and enquiry are the two characteristic words. I should not call the age either a credulous or a sceptical one. Examples of egregious credulity we have undoubtedly seen, but they are partial and ephemeral, and only in an age in which there is faith are such diseases of credulity possible. The age which succeeded the Revolution was one of religious repose, but also of religious stagnation. The reaction of the tremendous struggle of two centuries, a struggle in which politics and religion were closely identified, was a languor from which for generations

men could not be permanently roused. Theology fell asleep in its pew, with its Tate and Brady on its knee. The sluggish acquiescence of the eighteenth century was not faith, which stands upon old foundations, not even credulity, which is easily tempted to seek new. Nor was the attitude of mind which stood apart from it, enquiry. Scepticism was at least as dogmatic as theology. *Non credo* was intoned in unison with a confidence, which, but for its coldness, might have challenged the name of zeal. The hesitancies of this age are better, if only because they are hesitancies. Doubt is easier than enquiry, while it implies more, for it implies that you have enquired, and have arrived at a sort of result, the result viz., of seeing reason to doubt if such and such evidence is sufficient. If a judge says he doubts, he does not mean that he has no opinion, but that he has an opinion, the consequence of diligent analysis. The difference between the scepticism—using the word conventionally—of this age, and the scepticism of that, is, I hope, and as at present advised think, that there was then a pre-disposition to disbelief, and the wish to find reasons; now, a pre-disposition to faith, with a hesitancy—for which the friends of faith may in some degree be responsible—whether the reasons for faith are adequate. And thus the source of the doubts of the age is, in a measure, its religiousness, *i. e.*, more people doubt and express doubts, because more people desire to believe, and are asking on what grounds their belief is challenged. Those who once gave up religion as a hopeless entanglement, or superciliously acquiesced in it as a politic institution, or contemptuously left it alone, are putting forth feelers after faith. There is certainly, as might be expected, a vein of cynicism in our social geology, but happily it seems generally found in alliance with want of faith in humanity, as much as in God; regarding philanthropy as a profession, and earnestness and goodness as harmless phenomena. Most of

the hesitancy as to faith, which is truly human, is reverent. Symptoms are encouraging or disheartening, and suggest hope or dismay, according as they accompany the advent or the retirement of disease. The same phenomena, which in one age would argue declension, in another would imply advance. The same thoughts and words, which would be alarming if they indicated a decline from faith, are hopeful if they shew a grasping after it. Even secularism is better than the scepticism of the age of Voltaire or Hume. It says "not proven" where that denied, and pleads for humanity in one world, where that ignored it in both. Holyoake is the most consistent secularist, because he is the least aggressive.

So that, remarkable as the coincidence of faith and enquiry appears, they are probably mutually helpful. The boldest enquiry, if honest, will strengthen faith somewhere. The firmest faith will least distrust any fair and necessary analysis of its claims. True enquiry argues a disposition to believe; true faith, a spirit which does not fear to enquire.

Isolation and co-operation, are together another very strongly marked feature of the age. They are to be seen, of course, according to circumstances, in all ages; but seldom could it be said there was a positive *tendency* in each of the apparently opposite directions. The one is traceable in the break-up or disorganisation of parties, political and religious, and even more in the difficulty of constructing new ones. The old lines are confused, and any attempted new lines soon become equally so. Every man has, to use an American phrase, a "platform" of his own, composed of pieces of wreck from divers "platforms" deceased. Hardly any end is to be accomplished without a temporary alliance of persons, otherwise moving apart, if not in hostile lines. The man who loves definition and classification is in despair. The gain to humanity from the unshackling of men's thoughts, and their

resolution not to work in gangs, is manifest, but the disadvantages would at first appear to be equally plain. Even a party is better than what Lord Palmerston called a fortuitous concourse of atoms. It would seem as though personal independence would be purchased at the expense, not only of *esprit de corps*, the strength which comes from sympathy, and some of the necessary conditions of success, but of actual brotherliness and sense of common loss or gain. But, along with this individuality, there is a gravitation towards co-operation, and even unity. Public benefits, formerly left to the chance of individual benevolence, are now accomplished by common consent and common action. The sense of interest which created companies, and the principles which created societies, have found a combined sphere in co-operative movements, and "industrial partnerships." That economic laws cannot be manipulated for philanthropic purposes is indeed a trite dictum enough; but that they cannot be obeyed in such wise as that mutual helpfulness in the doing and mutual well-being from the deed may ensue, is not so clear. The friends of co-operation say that the key of reconciliation of personal and common interests has been found in the principle of making the vendor and the purchaser one. The doubters, that some of the healthier elements of ambition, competition, and successful industry would be lost. The questions involved are too new to permit of many, certainly for such as are ignorant of political economy as a science, forming a competent judgment. To such, it seems that it may begin and end with a—doubtless healthy—infusion of a more brotherly spirit of self-reliance among the working classes; or, that it may be the first vision of an apocalypse, whose successive seals will see a work of judgment on many giant evils, and a more vital unity of the trader and the man.

The circumstances or ideas, however, which have created co-

operation hardly account for the analogous development in the ecclesiastical world. The phenomena of such conjunctions as Mr. Baptist Noel and Mr. Holyoake in one movement, and Lord Shaftesbury and Archbishop Manning in another, are certainly remarkable, if only as showing how wide the interests such questions must embrace, which, with outstretched arms, can touch poles so distant. But these are forms of co-operation; and as *this* is something more than combination, of which it is taking the place, so is that *Unity*, towards which the religious world is yearning, something deeper and truer still. That Christendom was once one, that there is no sufficient reason why it should not now be one, that men should labour for its resolution into one—the breadth and tenacity of the idea are not to be mistaken. All that is written or said against this or that embodiment of the feeling, against even its feasibility or expediency, all criticism, however contemptuous, prove, at all events, that it *exists*: and it is this on which we now insist. The minds of men, either by way of hope or fear, have become filled with it, in disproportion to the character of a speculation. We have only to remember how short a time since the accepted doctrine was, that it was every way better that Christendom should be fifty than one, to realise the change which has brought so many even to wish the fifty were reduced to ten. The press, for a few years past, teems with opinions and facts, small and great, upon the subject. There is only one other sentiment which approaches in strength the resolution to do battle against all comers, and that is the desire to make an ally of the foe. The sentiment has not remained inactive. Amongst some of the more important non-episcopal bodies, negotiations for the union of two, or more, into one, have been going on, and are in some cases practically closed. In the Church of England, three influential combinations are working to what is virtually a like end;

and the fact that the boldest of them — that which contemplates the corporate re-union of the three great branches of ancient Christendom — has some ten thousand members, clergy and laity, of whom hundreds are members of the Greek and Roman communions, is one which, whether practical or unpractical, is undoubtedly significant and suggestive.

Taken in all its bearings, for the last mentioned is in a degree sectional, no phenomenon at all analogous to the present movement towards unity has been visible since a period long preceding the great schism of the tenth century. Before and after that, the characteristic struggle was for supremacy; that of the middle ages, for consolidation; that of the later centuries, for independence. Then the question became, how to make isolation more complete. In the England of the seventeenth, the creeds fought for power, not more perhaps from the love of power, than from the sense that it was the only alternative of bondage. Above the din, sweet voices of peace-makers were indeed heard, but that which Howe pleaded for was union among protestants, Jeremy Taylor, toleration. That there should have been more peace under Anne and the first Georges was little. The church and the nonconformists had recently fought and conquered together; and in the theology of Tillotson and Blair there was little to peril the alliance. Polemics revived, and Irene abdicated. And now, when all systems are alive, and most of them aggressive, each tenacious of its rights and mindful of its wrongs, opinions conceived with freedom and expressed with frankness, and the natural issue would seem to be infinite independence, men dream and talk of that for which peace is too feeble a word. They speak, not of conquest, submission, compromise, truce, not even peace,—Unity. The phenomenon is worthy of more attention, that is a different kind of attention, than it has received.

Independence of thought and deed is a conspicuous and healthful symptom of the times. That vague personality we call "the world," is feared perhaps as much as ever, and perhaps always will be feared more or less. It is only the diseased form of that respect for "public opinion," the collective verdict, which has its influence amongst the data of a modest thinker. But the shackles of "the world" in its concrete form, embodied in any number of individuals variously related to us, have become intolerable. The dedications of old books are the visible links of chains which we marvel greatly that good and able men could have worn. We do not honour Lord and Lady B. less, that we do not soil our pages with greasy eulogy, but more; we prize freedom too highly to think it righteous towards any to imply that they think meanly of it. He who recognises no debt to the judgment of others in the formation of his own is an ingrate; he who will not make use of it, a fool; he who sells or surrenders his own, avowing in the act that it is worthless, a deceiver or a slave.

Side by side with this is the very remarkable development of sacerdotal ideas, and the recognition of at all events certain forms of sacerdotal power. I am speaking apart altogether from the merits or demerits of the questions involved. The future historian will remark that the incidence, so to speak, of sacerdotal ideas, if wider, was not sharper in the Plantagenet era than the Victorian. That the same age which witnessed the practical application of electricity and steam, organised international exhibitions and laid the Atlantic cable, witnessed a bold assertion of claims only less remarkable than the alacrity with which they were recognised; that this was not the work only of those by or for whom the claims were made; that laymen, first in colleges and inns of court, then in shops and ships and exchanges, defiantly affirmed and fiercely maintained them; that the most

adventurous pioneers, and the most resolute champions, makers of the strongest speeches, and writers of the most successful journals, were laymen,—laymen too of all sorts and conditions, not excepting those classes from which the sturdiest opponents of such claims had been wont to come,—classes the most restless in liberty, and the most impatient of control. Malibran is said on one occasion to have exacted from an unsuccessful manager the last farthing of her due, that it might, as a gift, be more worthy his acceptance. The citizen of the nineteenth century stands rigidly on his rights, that he may lay them at the feet of the priest; he would enact Hampden, if thereby he could serve Laud.

It is not the least noteworthy feature of what we may call, for present convenience, the sacerdotal husbandry, that it finds, rather than makes, or finds quite as much as it makes, a prepared soil. It may land at any point of the coast, eagle in hand, sure of voices to cry “Vive l’Empereur.” Where it has never yet set foot to do an “educating” work, the lay mind is prepared to welcome it, and meanwhile to amuse itself by working up most unpromising materials into a semblance of it. And when you go from the Church to the religious world beyond its borders, you have not left the whole thing behind you. You cannot of course speak of sacerdotalism in connection with communities built on its repudiation; but the revived ideas, the most vigorous ideas, the ascendant ideas, are those which, at whatever distance, are still nearest to the confines of the sacerdotal. I speak now of the older and more recognised communities. In the case of the newer and more peculiar, it will be found that the most aggressive and successful are those in which the sacerdotal idea is most present.

I do not venture to suggest a solution. The question of the theological truth or otherwise of the sacerdotal principle, is beyond our province as a Society. But as one of the

phenomena of the age, as a fact which should have its place in any comprehensive conception or portraiture of it, it cannot be left out of sight. The simple assertion of the principle would be an anachronism; the ignoring of it no less a mistake.

This is perhaps the most suitable point at which we may leave some seemingly *opposed* phenomena, for some simply *parallel* developments, which, without being opposed, are remarkable for their coincidence, and important, either for contributing in their consideration to the disentanglement of our views, or suggesting problems which need to be solved.

Of the former class are the two parallel developments of æstheticism, and what is loosely known as "Ritualism." By a confusion of ideas, which in the interest of any religious notions is to be deplored, the one is popularly identified, for good or evil, with the other. The fact is that Ritualism is only incidentally an æsthetic movement. Sacred art owes whatever strength or weakness it derives from the association to historic coincidence. Certain dogmas have long been taught, certain observances are their natural expression; that is one fact. But it is wholly independent of the contemporary fact, that society has tired of Georgian rules of taste. The grace and warmth which have visited with so genial an effect our halls and our homes, have visited our temples. In no nation could its religious observances fail, sooner or later, to feel the influences of a general revival of taste. The theology, of which what is called "Ritualism" is supposed to be the expression, simply shares the boon. A beautiful church, without certain adjuncts, would not satisfy the canons of Ritualism; an ugly church, with those adjuncts, would. Æsthetics say it is an open question, whether ornaments of a certain shape and colour are in good taste or not, whether lights are beautiful or not, and the like; that

it depends on the place, the surroundings, and the like. The theology says it must be *there*. Æsthetics say, whatever colour this or that may be, let it be shapely and beautiful. "Ritualism" says, "beautiful or otherwise, it must be green." Let the "Ritualists" and their opponents fight out their battle fairly. But whatever their sympathies in the strife, men of sense, and friends of art, should remember they have a third interest at heart. The banner of the beautiful has no business in the fray. Fairness and ugliness must not stand or fall by the issue. Architecture, painting, music, and their attendant sisters, are handmaids of religion, not slaves of systems. The notion of finality in sacred art is one which cannot for a moment be entertained.

There is one respect in which thought suffers from contact with the general characteristics of the age. The rapidity with which we are accustomed to move, the promptitude with which we are accustomed to act, render us impatient of those slow processes by which the more permanent and reliable results of thought are worked out. Not that rapid thinking is necessarily inaccurate thinking. I should toil and plough slowly through a calculation, at the results of which many who hear me would arrive in time to meet me half way on return. Nor are the influences of the age altogether without a legitimate effect: we have, undoubtedly, more *materiel* than in previous ages, more means and appliances, more rolling stock, less to "evolve out of our own consciousness." Primary truths, quarried for us by God-like labours long ago, and growing ever since in shapeliness and strength, are our heritage, rather than our handywork; and data in rich multitude are at hand. If we have less to quarry, let us remember we have more to build.

Nevertheless, to the average mind and to the many, this power-loom characteristic of modern thought is pregnant with danger. However rapid a process may be, it is a

process. If we could steam to London at a hundred miles an hour, we must give two hours to the task. We cannot execute evils by drum-head court martial, or enthrone good in the hearts of men, or the laws of nations, by the stroke of a pen. Opinions have been getting into the limbo of fashion, and are in danger of coming in and going out with chignons. It has been observed — I think by Conybeare, in his article on Church Parties — that it is the tendency of religious enthusiasm to degenerate in the second generation; if that is true generally, it is perhaps more so now than ever; and if true in religion; it is true in philosophy, in ethics, certainly in art. In vain we appeal from Philip drunk to Philip sober; when he sits to hear the appeal he is drunk again. Mr. Ruskin warns us not to believe what he used to say, and is young enough to write more errata yet. Uncle Tom was the rage, society touched its hat to him; society now, through its eyeglass, gives him a well-bred stare. Copy nature, we say to the artist, and he tries. Slave of fact, we exclaim, you should idealise, and he tries. And then we tell him, with much pomp of words, that he was right the first time, and that fact is the greatest idea. The grey among us were born, architecturally speaking, into a Palladian world; they opened their eyes on Ionic churches, Doric lodges, and Tuscan pumps. Those who followed were only just in time to mourn their decease. We steered due north, ran under crowded canvas through all the Gothic seas, find ourselves already in conflicting currents, and may yet live to drop anchor in Vitruvian harbours, and grow garrulous against the spires and finials of our youth.

One evil amongst others incident to this fungous growth of opinion is, that people who think slowly, or slightly, unwilling to seem ill-informed or out of date, dispense with the intermediate formulæ, and rush, rather than arrive, at conclusions; or, to save all trouble, buy them wherever

“neat things in opinions” are to be had. So they will always do. The moral, of course, is that those who do think, and who, by aspiration or by circumstance, are “leaders of opinion,” should know whither, as well as whom, they are leading.

The peculiar form which Town life is more and more assuming is one of the most remarkable characteristics of the age. We are becoming an urban nation. Our employments and interests draw us more and more into masses. The picture of a kingdom of towns, varied only by parks, hills, or commons, is indeed one as unnecessary as it is painful to contemplate. Our literature must have been burned, our most truly national pictures defaced, our music silenced, and our character despoiled of some of its best elements, before we could bear to see such an England. Brook and copse, lane and meadow, farm and spire, are words we dare not let die. But the area they adorn is becoming less, and the denizens fewer. More of the poor live in towns, and more of rich *and* poor work in them. But parallel with this fact is the other, that the rich as a body will work *only* there. The town of old time was a microcosm. The king—if it was a capital—was much there. Nobles dotted the banks of the river with their palaces, and were familiar in the streets. Retainers and apprentices fraternised, courtiers and merchants, lawyers and divines, philosophers and scholars met in Paule’s or Chepe, chambers or coffee-houses, worshipped on Sunday in the same church, slept on week-days within sound of the same bells. The symposia are no more. Goldsmith would ring for Bradshaw, and Reynolds stalk off loftily to catch the 9.30. The scattered group would dot themselves down in sloppy townlets, each unit the sun of a system of sparks and glow-worms, enjoying the advantages neither of town nor country. And since, as facilities multiply without, and rents increase within, the tendency to emigrate

will become enlarged, the field of speculation becomes wide and tempting. If a large town is to become a mere nucleus of marts and stores, with a dense border of those who can get no farther, and an irregular fringe of those who can, either the march of town improvement must be stayed, or the impressive and refined influences of great human works, which to the citizen make up for the absence of nature, will be the monopoly of the humble, and we shall have to found schools of science and art for the improvement of those above them. For the greater architectural works, and whatsoever they imply, must still be in the town; churches, museums, theatres, exchanges, halls, "*artibus, legibus, consiliis.*" But the problem grows in exigency—and whoso contributes to its solution is a true philanthropist—how may the new relations of classes thus created be best adjusted, that evil may be prevented and good accrue. The breaches of intercourse made by the conditions of modern commerce and manufactures are being widened by isolated homes; and although the humbler may find means to follow the richer, these again will flee farther still. "Out of sight, out of mind." The warehouse and noonday are not the place or the time for fraternity. Democracy itself is more accessible to Carlylean influences. The morning and evening nod, the friendly inquiry, the frank and mutually respectful interchange of ideas, the delicacy which teaches delicacy, the co-operation of the good and strong of all ranks for the benefit of the bad or weak, are theirs who meet "out of business hours," whose garden walls are not too far apart, who know the same doctors and parsons, whose voices mingle in the same churches, whose graves, alike in neighbourhood and difference, are the silent echoes of their homes. How would all this be supplied? The tendency to think less where the contact is less, or where it is under less sympathetic conditions, is one it is vain simply to deprecate or

condemn. It is natural and inevitable; we must see and hear, touch and feel, in some way, if we are to *do*. Nor is it to be supposed that any degree of amelioration and elevation of the humbler classes, which can for long be rationally looked for, will of itself be a remedy; for not only is it inconceivable that the elevation should be accomplished, if those who must at all events aid, are isolated; but as, under any circumstances, there will always be ranks and classes, so there will be always ends to serve by contact of great importance to humanity. If it is too much to hope that with the amelioration of the condition of the working classes, with the growth of temperance, providence, and education, may come a time when they shall not be thought undesirable neighbours, and when "cottage property" may not make "eligible villas" less so, we must look to other points of contact. If the relation of neighbourhood is impracticable, what other relations remain? That of givers and receivers of alms applies but within certain limits, and the narrower of course the better. That of visiting and visited, useful as in wise hands it is, must be expected to grow more limited in area as the homes multiply in which only the minister of religion could be an unbidden guest. And as the denizens of these should in their turn be ministrants of deeds of kindness to the less fortunate, the need of sound bonds between them and the more favoured still would be the greater. The fact is, that the relation of patron and patronised, in some form or other, inevitable as it has been, and still is, is incompatible with the more brotherly relations we seek to establish, and which the altered conditions of town life may assist to prejudice. Once make it possible for gentleman and artizan to meet without an uneasy sense of there being something to get or something to guard, and though the thing will still remain to be done, a cardinal difficulty in the way of the doing will be removed. Then, or in view of

it, it may may be considered whether common ground and common occasions may not be found. Our libraries and museums, our galleries and schools of art, seem to afford the means and the occasion in many ways if we are willing to address ourselves to the task. More frequent and more friendly intercourse is what we want. Already tentative things have been done. The meetings in connection with the Church Congresses, and that in London on the subject of the working classes and religious institutions, have been, very faint indeed, but perhaps real, shadows of things coming. Such movements as the United Kingdom Alliance, setting aside our opinions of the policy advocated, are valuable, for accustoming people widely separated in society to act together. And perhaps one of the best gatherings of this kind has been the recent Conference on Co-operation in Manchester, both because of its composition, and because of its topic. To keep all ground common that is already properly so — as for instance church ground; to enlarge such as admits of enlargement, and to devise new ways of common intercourse, and new paths of common action in view of new conditions; these seem to be in brief the tasks of the time which the isolating influence of town changes suggest to us.

The isolation of classes is not the only effect of modern town conditions. Those whose tastes and objects are already common, meet and act only with increasing difficulty. Voices we should be glad frequently to hear, grown hoarse with busy care by day, are lost among suburban echoes at night. As the radius enlarges, and the scattering grows, the centre is more and more distant. If we are to come to a circumference of city-villages, each with its small life and its coteries, let us hope the time is distant. The centripetal force has not yet lost its potency. In the converse of congenial minds, the contemplation of ennobling objects, the discourse of profound or graceful

themes, those who will may yet find both luxury and strength; in united conflict with things evil, learn skill to meet them alone; in the independent yet modest exercise of thought, nourish that desire to learn which best qualifies to teach; in the diligent use of social conditions as they are, prepare to meet well and wisely any new conditions which may arise.

“As iron sharpeneth iron, so a man the countenance of his friend.” Thus may we aid the race as it is, and assist to forge

“ a closer link
 Betwixt us and the crowning race
 Of those that, eye to eye, shall look
 On knowledge; under whose command
 Is Earth and Earth's, and in their hand
 Is Nature, like an open book.”

FIFTH ORDINARY MEETING.

ROYAL INSTITUTION, 16th December, 1867.

The Rev. C. D. GINSBURG, LL.D., PRESIDENT,
in the Chair.

The Rev. Andrew Wilson, B.A., was unanimously elected an Ordinary Member.

Mr. Moore exhibited a portion of the collection of natural history specimens from the Island of Madagascar, collected there, and bequeathed to the Derby Museum, by Mr. William Tyrer Gerrard, who was born at Knowsley, and died, aged 35, at Foulpoint, Madagascar, in July, 1866, from yellow fever.

The Rev. J. Holding, F.R.G.S., (several years resident missionary at Madagascar, and introduced to the meeting by Mr. Moore,) then read a lengthened notice of Mr. Gerrard's efforts in the cause of natural history, from the time of his arrival in the Island to his death and burial at Foulpoint, giving many graphic details of the difficulties Mr. Gerrard had to contend with, and of his ardent zeal in the service of science.

The Paper by Mr. John Newton, M.R.C.S., "On Fire as an Agent of Civilisation, and the various modes of obtaining it," which was read at this meeting, will be given in a subsequent part of the Volume, unavoidable circumstances necessitating this arrangement.

SIXTH ORDINARY MEETING.

ROYAL INSTITUTION, 13th January, 1868.

J. BIRKBECK NEVINS, M.D., VICE-PRESIDENT,
in the Chair.

The Rev. W. A. Whitworth, B.A., and Mr. C. H. Stearn, were unanimously elected Ordinary Members.

The Hon. Secretary read a letter from Dr. Baker Edwards, of Montreal, late one of the Vice-Presidents of the Society, in acknowledgment of the address presented to him by the Society, and expressing his hearty thanks for their expression of good will, which he valued most highly and very cordially reciprocated.

Mr. Moore then exhibited a living specimen of the *Proteus anguinus*, which he said was an object of very considerable interest. They were indebted for it to Mr. John Dove, who was then present, and who brought it himself from the celebrated grotto of Adelsberg, in Carinthia, on the road from Vienna to Trieste. Although these creatures had been long known, they were rarely seen; they resembled an eel with legs, so much were their bodies elongated. They were quite blind; at any rate the eyes were extremely small, and covered by the skin, through which they were with difficulty discerned as round black spots. The powers of the sight must therefore be very small, if they existed at all.

A singular circumstance was that although this specimen had only been exposed to the ordinary light of the room, the

black spots indicating the position of the eye had become more visible than when Mr. Dove first obtained it; it was a subterranean specimen, and the skin was of a white or flesh colour. Mr. Dove stated the animal was more lively by night than by day.

Mr. Moore then showed two little creatures which Mr. Dove obtained from the same cave. They looked very like ants, but were supposed to be beetles. He thought they were greatly indebted to Mr. Dove for his kindness in bringing these specimens for their inspection.

Mr. Moore next exhibited a group of fossils (Andrias, Schenchzen, Tscudi), of the order of the miocene tertiary, from Ceningen, Switzerland, the original of which is to be found in the British Museum. About a century since it was thought that this fossil was a human skeleton, but Cuvier had proved that it was an amphibious reptile, belonging to the group already mentioned.

The following Paper was then read :—

ON SOCIAL LIFE AMONG THE TEUTONIC RACES IN EARLY TIMES.

By J. A. PICTON, F.S.A.

THE civilised life of modern times presents so complicated an aspect, its springs of action are so manifold, its relations so multifarious, that the analytical inquiry into its primitive elements is an exceedingly difficult task.

And yet if we would rightly comprehend the political and social phenomena of the present time; if we would understand the distinctive features of the various nations of modern Europe, it is necessary that we should investigate, in a general way at least, the condition of the original stocks out of which these goodly branches have grown. The spring at the fountain-head gives the character to the river which flows from it; and the physical and mental condition of our early ancestors has imparted its bias and tone to every period of our history.

On the present occasion, I propose to institute an inquiry, necessarily brief and slight, into the early social condition of the Teutonic race. This is the stock to which we as Englishmen belong, and from which we derive most, both of our good and evil qualities. The sources from which I have principally drawn my illustrations are the early laws of the three principal Teutonic tribes, the Franks, the Alemanni, and the Anglo-Saxons.

The laws of a people are an unerring test of their condition; of their government, personal relations, their prevalent vices and virtues, their manners, customs, property

and mode of life. Every law shews us by implication the state of things requiring it, and thus pictures in strong colours the general state of society existing at the time of its enactment.

Our earliest notices of the German races are derived from Cæsar, but the fullest account handed down from classical times is found in the *Germania* of Tacitus. The picture there presented is that of a people just advanced into what is called by ethnologists the iron age,* divided into numerous tribes with no regular government; electing their kings or chiefs as necessity required, but usually from particular families.† The law was administered in assemblies of the whole people, called by Tacitus *Concilia*, equivalent to the *folc-mot* of our Saxon ancestors, or the *Thing* of our more Northern relatives.‡ Ignorant of letters as they are said to have been,§ their laws and customs must, at this period, have been handed down by tradition only.

About the year A.D. 360, letters were introduced amongst the Goths of Mœsia, and the Scriptures translated into their language by their bishop, Ulphilas. They had also a collection of written laws, which have unfortunately been lost.

Our business at present is with the Western branches of the great Teutonic stock. The multitude of separate clans named by Cæsar and Tacitus gradually crystalised into tribes, and these again formed themselves into confederacies, which ultimately became nations. The three great western Confederacies, or nations, were the Franks, the Alemanni, and the Anglo-Saxons.

* *Ne ferrum quidem superest sicut ex genere telorum colligitur.*—Tac., *Ger.* sec. 6.

† *Reges ex nobilitate, duces ex virtute sumunt.*—Tac., sec. 7.

‡ *De minoribus rebus principes consultant; de majoribus omnes.*—Tac., sec. 11.

§ *Literarum secreta viri pariter ac femina ignorant.*—Tac. sec. 19.

The Franks are first heard of A. D. 240, when Aurelian, afterwards Emperor, encountered an invading force, and drove them back across the Rhine. Many derivations have been suggested for the name, but the most probable is that supported by the high authority of Gibbon and Grimm, that it implied a Confederacy or nation of free men. The Franks were separated into two divisions, the Ripuarians who inhabited the neighbourhood of the Rhine, and the Salian or Salic Franks, whose original seat was on the river Saal.

There is a mythical account of a king Pharamond, who is said to have flourished in the fifth century; to have established the monarchy, and to have collected the Salic laws. The story, however, rests on no solid foundation.

There can be no doubt that the laws of the Franks are the earliest illustrations of the condition of the German races, and in their original condition are of very high antiquity. They bear internal evidence of having been originally prepared before the existence of a kingly government over the whole nation.

They were revised by king Clotaire A. D. 593, and enlarged and extended by Charlemagne A. D. 768–814. The existing text is in Latin of a barbarous dialect. There are several versions, some of them interspersed with old Frankish words, the import of which it is extremely difficult to determine. Two versions are given in Schilter's *Thesaurus Antiquitatum Teutonicarum*.*

The Alemanni were a collection of tribes principally seated in the ancient Rhoetia, between the sources of the Rhine and Danube. The name is supposed to be derived from the extent of the confederation, meaning "all men" in the old German, *alle männer*. They are first noticed

* *Ulmæ, Danielis Bartholomœi, 1727 A. D., 3 vols. fol.*

in the reign of the Emperor Caracalla, A. D. 214; after various vicissitudes we find them, A. D. 496, beaten by the Franks under Clovis in a great battle. In the sixth century they united with the Suevi and formed the Duchy of Allemania. They occupied so important a position in the eyes of their western neighbours as to have given the name by which Germany is known to the French at this day, "Allemagne." Their laws, as handed down to us, were finally revised by Charlemagne in the eighth century.

They exhibit a great change from the simplicity of the Salic code, embracing a greater variety of topics, and proceeding on different principles. They manifest the greater supremacy of law, and greater power of punishment. The Church had become mixed up in all the affairs of life, and weaves its tissue of influence through all the ramifications. A considerable part is also derived from the Roman civil law.

The *Jus Provinciale Alemannicum*, is also found in Schilter's collections. The laws are written in the Theotisc, or old high German dialect, with a Latin paraphrase, which in many cases differs materially from the old German text.

The early history of the Anglo-Saxon race in England, is too well known to require any summary here. We have a very full collection of the laws of the various Saxon kingdoms from the earliest times. My illustrations are drawn from the laws of Ethelbert, king of Kent, baptised in 597, died in 616; those of Ine, king of the West-Saxons, 688-725; Alfred, 871-901; Edward the elder, 901-924, Athelstan, 924-940, with others.*

With these preliminary observations, let us now endeavour to ascertain what light is thrown on the social condition

* These will all be found in the 1st volume of the *Ancient Laws and Institutes of England*, issued by the Record Commission, 1840, edited by Mr. B. Thorpe.

of our early ancestors and congeners, by these various collections of laws.

First, let us inquire into the personal condition of individuals in their relation to each other. However far back we search into the history of the Teutonic races, we find at least three orders recognised, the noble, the freeman and the slave. In Tacitus we find indeed four ranks; *nobiles*, *ingenui*, *libertini* and *servi*.^{*} It has been held that originally there were only two orders. “*Olim quicumque Liber nascebatur, nobilitatis etiam particeps quodammodo censebatur. Potentia et opes erant illae revera, quae unum supra alterum efferebant.*”[†] Captives taken in war became the first slaves, and from these simple relations arose the various subsequent complications of rank.

Amongst the Alemanni there were three classes of free men, who are thus described:—

“Hie sol man hoeren von drier hande frien luten, waz rehtz die haben.

Ez haizzent ains *semper-frien*; daz sint fri herren die ander frien ze manne habent.

Daz ander sint *mitler frien*, daz sint die, die der hohen frien man sint.

Daz dritte sint geburen, die fri sint, die haizzent *fri lantsœzzen*.

Der hat jeglicher sunder reht, alz wir hernach ju wol gesagen.”

“We shall here speak of three sorts of free people; what rights they possess.

The first are called “entirely free;” these are they who have other freemen as vassals.

The second are styled middle free; these are the vassals of the first.

^{*} Tacitus, *Germania*, secs. 24, 25.

[†] Muratori, *Antiq. Ital.*, vol. i. 714.

The third are the peasants who are free; these are called free land-tenants.

Each of these classes has its separate rights, as we shall hereafter shew you."

Originally amongst the Saxons the same division prevailed. "Gens Saxonum omnis in tribus ordinibus divisa consistit. Sunt enim inter illos *Edelengi*; sunt qui *Frilingi*; sunt qui *Lassi* illorum lingua dicuntur. Latina vero lingua hoc sunt Nobiles, Ingenui et Serviles."*

In the course of time other and more complicated relations grew up. The nobles, who were only distinguished from the Frilings by wealth, when poor, dropped into the rank below, and the free men (*ingenui* or *liberi*), became in many cases dependent, and swearing fealty to a superior (*patronem sive seniozem*), became vassals. These are called in old charters *arimanni*, or *herrmanns*, equivalent to "Ingenui, qui rusticum prædium excolebant, aut Beneficia à principe receperant;" in fact they were tenant farmers. Muratori gives examples of deeds amongst the Lombards, in the north of Italy, in the eighth and ninth centuries, which for detail and stringency in the covenants might stand as models for modern leases.

In a paper like this, it would be impossible to enter into an explanation of the complex conditions of the society of the period we are now contemplating; amongst the Franks, the *Antrustiones*, the *Leudes*, the *Ingenui*, *Liberti*, *Liti*, *Mancipia*, *Servi*; amongst the Alemanni, the *hohen Dienstmannen*, the *Semperfrien*, *Mitlerfrien*, *Buwelüten*, *Geburen*, &c.; amongst the Saxons, the *Etheling*, the *Thegn*, or *twelf hynde man*, the *six hynde*, *try hynde man* or *ceorl*, the *radman*, *socman*, the *theow*, or slave, &c. It may be stated generally that our modern idea of the equality of all ranks and classes in the

* Nithardus, lib. 4.

eye of the law, had no existence. Each rank and class was legislated for separately; their offences were differently punished, and their compensations for injury were awarded on a different scale. A whimsical instance of this is presented in the Salic laws. In the palmy days of Rome, to be a Roman citizen was esteemed the highest honour which an individual could possess. *Civis Romanus sum*, was the proud claim for exemption from bondage and every ignominious punishment. In the sixth century, amongst the Franks, a melancholy change had taken place. To be a Roman was rather a mark of degradation, than a claim to honour. It would appear that, at that period, when a man quarrelled with his neighbour, instead of giving him a punch on the head as the bold Briton of the nineteenth century would do, they had an ugly practice of binding each other with cords.* Against this habit, chap. 34 of the Salic laws is directed. It is headed, “De eo qui hominem ingenuum sine causa ligaverit.” The fine levied upon a Roman was much more severe than that inflicted on a Frank. “Si Romanus Francum ligaverit sine causa, mille ducentis denariis, qui faciunt solidos triginta, culpabilis judicetur.”

“Si autem Francus Romanum ligaverit sine causa, sexcentis denariis, qui faciunt solidos quindecim, culpabilis judicetur.”

It is curious to note that amongst the Ripuarian Franks this rule was reversed. A Frank insulting a Roman was convicted in a severer penalty than the Roman insulting a Frank.

It is generally considered that there is no more certain test of the true progress of civilisation than the state of the relations between the sexes. Measured by this standard, the Teutonic races have always held a high place.

* This custom is alluded to by Tacitus, *De Mor. Ger.*, sec. 24.

Even in the time of Tacitus, the marriage relations extorted the praise of the Roman observer. “*Quanquam severa illic matrimonia; nec ullam morum partem magis laudaveris: nam propè soli barbarorum singulis uxoribus contenti sunt.*” After remarking that amongst the Germans the dower was not given by the wife to the husband, but by the husband to the wife, he says that the wife fully understood she was to be the sharer of the good and evil fortune of her spouse. “*Ne se mulier extra virtutum cogitationes, extraque bellorum casus putet, ipsis incipientis matrimonii auspiciis admonetur, venire se laborum periculorumque sociam, idem in pace, idem in prælio passuram, ausuramque.*”

These principles are fully borne out by the enactments in the old laws. In the dooms or laws of King Edmund, A. D. 940, the marriage customs in England are fully set forth. If a man desired to betroth a maiden, he had to promise her friends that “he desires her in such wise that he will keep her according to God’s law, as a husband shall his wife; and let his friends guarantee that.” He had then to give a pledge or security to this effect. This pledge was called a *wed*, hence our term “wedding” applied to a marriage ceremony. If all was agreed, then the wife was entitled to half the property, or to all if they had children in common, unless she again chose a husband.

On the morning after the marriage it was customary for the husband to present to the wife a *morgengabe*, or morning gift. The indulgence of the newly married men was sometimes carried to such a pitch that it was necessary to enact laws to restrain their liberality. Amongst the Lombards, the *morgengabe* was restricted to one-fourth of the bridegroom’s substance. The Alemannic laws permit the gift of a servant and maid, with a certain quantity of land and buildings. The law then proceeds: “*Ez git der friherr sinem wibe daz wol hundert mark giltet; ich main fürsten*

und ander friherren. Die mitteln frien, daz zehen pfunt gelt. Der fürsten dienstman, daz fiunf mark gildet." "Free-men may give to their wives to the value of a hundred marks, I mean nobles and others entirely free. The middle free, to the value of ten pounds; the vassals of nobles, to the value of five marks." We heard a few years ago, a good deal about *morganatic* marriages. This was a *quasi* marriage, arising from the *morgengabe*. Where no previous ceremony had taken place, the morning gift was held to convey certain rights, though not to the extent of a legal marriage, and was resorted to where crowned heads and princes entered into a connection with a woman of lower rank.

In case of unfaithfulness to the marriage vows a very summary method was adopted. The laws of king Ethelbert enact: "Gif friman with fries mannes wif geligeth his wer-gelde abicge; and other wif his agenum sceatte begete, and thœm othrum cœt ham gebrenge." "If a freeman debauches a freeman's wife, he must be fined according to his wer-geld, and he must buy another wife with his own money, and take her home to the other man." This is assuredly a very simple and business-like way of assuaging wounded feelings, and assessing damages in a *crim. con.* prosecution.

The marriage of widows was originally not permitted, and was always looked upon with something of disfavour amongst the early German races. In the Salic laws, when a man wished to marry a widow, a court or public assembly had to be called, when certain formalities were gone through, and securities given. A certain sum of money had to be paid by the intending bridegroom to the relatives of the deceased husband; the inheritance of which went first to the sister's son, then to the cousin by the mother's side, and, failing these, to the maternal uncle. Any man marrying a widow without this formality, was liable to a fine of 2,500

denarii, equal to $62\frac{1}{2}$ solidi, or shillings, which, as the price of an ox was about one shilling, was no trifling penalty.

Females were protected from insult by regulations quite as strict as those of our own time. By the Salic laws, if a man squeezed the hand or finger of a woman he had to pay a fine of 600 deniers, or 15 sols; if he squeezed her arm, the penalty was 1200 deniers, or 30 sols; but if he had the temerity to touch her breast, he was mulcted in 1800 deniers, or 45 sols.

I may here say a word on the general principles embodied in these early laws. "They are such as might be expected from the time and place of their composition. Necessity, it has been well said, dictated them, and freedom wrote them down. They bear the stamp of a rude and free people, living by agriculture and the pasturage of cattle, ignorant of the complicated relations of civilised life, and prone to crimes of violence, rather than of licentiousness or chicanery."* These remarks apply especially to the laws of the Salian Franks, the earliest code which we possess, and in which there is a striking coincidence with the particulars we learn from Tacitus.

The earliest form of punishment for offences was the *lex talionis*; an eye for an eye, a tooth for a tooth, the infliction on the offender of the evil he had himself committed. There are many remains of this in all the early Teutonic laws. Thus, in the *Jus Aleman.*, ch. 168: "Der dem audern ainen zan uz sleht, dem tu man daz selbe." "Whoso strikes out the tooth of another, to him the same shall be done." So in the laws of king Alfred, No. 18: "Gif hwa othrum his eage othdó, selle his agen fore; toth fore toth, honda with honda, fet fore fet, bœrning fore bœrning, wund with wund, læl with læle." "If any one put

* Perry, *History of the Franks*, p. 433.

out the eye of another, let his own be given for it; tooth for tooth, hand against hand, foot for foot, burning for burning, wound against wound, stripe against stripe."

As early as the time of Tacitus this rigid system of revenge had somewhat softened down. He says: "*Suscipere tam inimicitias seu patris seu propinqui, quàm amicitias necesse est; nec implacabiles durant. Luitur enim homicidium certo armentorum ac pecorum numero, recipit-que satisfactionem universa domus; utiliter in publicum, quia periculosiores sunt inimicitie juxta libertatem.*" "They (the Germans) are bound to take up the feuds as well as the alliances of their fathers and relatives, but they do not remain implacable; for even homicide is compounded for by a certain payment of cattle and sheep, and the whole family receives satisfaction. This is useful in a public sense, for feuds are very dangerous towards freedom."

In the course of time this commutation of punishment for a money payment became embodied into a system under the head of "*Leodis*," "*were geld*" or "*bot*," which forms the main staple of the Teutonic laws. In the later Anglo-Saxon codes, a regular catalogue is made of the various parts of the human frame, and the price set upon each. Thus, in the laws of Alfred, if a man strikes off another's thumb, he must pay thirty shillings; for the little finger, nine shillings; for the nail thereof, only one shilling. If, however, he soars higher, and desires the luxury of smiting off his neighbour's nose, he must pay sixty shillings; but if he strikes off his shank near the knee, he must pay eighty shillings for the pleasure.

This may seem at first sight incongruous and repulsive, but we shall find much to be said on the other side. The change from brutal revenge to a money compensation was a step in the direction of order and law. It repressed the thirst for blood; it prevented that worst of evils, and most

inimical to peace and safety, the perpetuation of feuds. At that time no other means of punishment existed, except retaliation in kind. Imprisonment was out of the question; jails had no existence, and would not have been submitted to in the habits of rough freedom then prevalent. Indeed, at the present day, with all our boasted progress, we still retain much of the same spirit in an administration of the law. If Lord Tomnoddy or the Hon. Captain Fitz Humbug indulge in a midnight freak, by which the eyes and limbs of Her Majesty's peaceable subjects are endangered and brought to grief, forty shillings and costs usually sets all to rights.

There is a striking difference in this respect amongst the codes of the Teutonic races in early times. Whilst in the Salic laws no other punishment is awarded for any offence but a money compensation, in the Alemannic laws, as revised by the Emperor Charlemagne, money compensation is ignored except as a composition for minor offences.

“Den diep sol man hahen,” “The thief must be hung;” is the stern and simple dictum of the law; but if the amount stolen did not exceed the value of five shillings, the thief was let off with a flogging, not exceeding in any case thirty stripes, which might be compounded for by a payment of five shillings in addition to the value of the stolen goods. Homicide, incendiarism, rape and other serious offences were punished with breaking on the wheel or beheading.

In the Anglo-Saxon laws there is a curious mixture of absolute punishment and money compensation, the latter, however, having the preponderance. In the laws of King Alfred, a considerable portion of the Levitical code of punishment is incorporated into the eariler portion; *e. g.*, “The man who slayeth another wilfully, let him be put to death.” Yet in a subsequent law, in the same code, we read, “If any one with a *hloth* (a company of robbers) slay an unoffending twy-hynde man, let him pay wēr and wite (that is, a compen-

sation to the family and a fine to the king), and let every one who was of the party pay thirty shillings as “*hloth-bot*.”

Amongst the Franks and Saxons, every man literally had his price. By the Salic law the *leodis* or life value of an *ingenuus*, or free man, was two hundred *solidi*, or eight thousand *denarii*, that of a tributary Roman, forty-five *solidi*, or eighteen hundred *denarii*. Amongst the Anglo-Saxons, men were divided into classes, according to the amount of *wēr-geld*, or money compensation, attaching to the life of each. Thus the *twy-hynde*, or “two hundred” man, the ordinary free man, had his life valued at two hundred shillings; a six hynde man, at six hundred; and a nobleman, or twelve-hynde man, at twelve hundred shillings.

The administration of the laws, and the system of government generally, was in its origin essentially popular.

Tacitus says, “*De minoribus rebus principes consultant, de maioribus omnes; ita tamen ut ea quoque, quorum penes plebem arbitrium est, apud principes pertractentur.*” “*Eli-guntur in iisdem conciliis et principes, qui jura per pagos vicosque reddunt.*”^{*} This was their condition about the first century of our era. When we next get a glimpse of their condition from the Salic law, about the end of the fifth, or beginning of the sixth century, we find the same principles still prevalent. The principal court was called the *Mallus*, which was held in the open air at stated periods for the administration of justice. The shield and spear were the emblems of authority, where every free man had a right to be present fully armed.[†] Amongst the Alemanni this primary assembly was called the *Vogt-dink*, or people’s council; amongst the Anglo-Saxons, the *Gemót*. These assemblies were held at

^{*} Tac., *De Mor. Ger.*, ch. 11 and 12.

[†] *Nihil autem neque publicæ neque privatæ rei, nisi armati agunt.*—Tac., *Ger.* c. 13.

stated periods. Edward the elder enacts, "Ic wille that ðe geref a hœbbe gemót á ymbe feor̃s wucan, and gedon that ðe man sy folc-rihtes wyrthe." "I will that every sheriff hold a 'gemót' once in four weeks, and order that every man be worthy of folk-right."

For the purposes of convenience and mutual assistance, very early amongst the Anglo-Saxons, the community was divided into tithings of ten families, and hundreds of a hundred families. Traces of the hundred may be found as early as the time of Tacitus. In the north of England the "hundred," probably owing to Danish influence, merged into the wapentake, or weapon touch, so called from the armed attendance at the court, whether Saxon *Gemót* or Danish *Thing*.*

Judges were appointed, at first by popular election, but afterwards by the king. These judges were authorised to take the advice and assistance of those around; a practice which ultimately led to the important result of trial by jury. Thus in the Alemannic laws, ch. 164: "Ez ist etwa gewonhait, daz man zwelf man nimpt, diē dem Rihter sulen helfen rihten; die haizzent schepfen." "It is in some places usual to take twelve men, who shall assist the judge to decide; these are called 'schepfen.'" They were, however, only considered as aids. "Swa schepfen sint, die man ze geziugen han uber alliu dink, dur in der stat geschehent." "Where there are jury-men, let them testify (or advise) on every thing which occurs in the place."† In the Salic laws, Tit. 61, "De chrenechruda," it is enacted that, if one man slay another, and his whole possessions are not sufficient to satisfy the law, he must procure twelve men to swear that

* — *quasi concussio armorum. Germani enim veteres nec concilium inibant, nec judicia exercabant, nisi armati. Quæ displicuit sententia, fremitu aspernare; quæ placuit concussis frameis laudare solebant.*—Spelman, *sub voc.*

† *Leg. Alleman., c. 184.*

he has not, either upon the earth or under the earth, any other property than what he has given up. After some further symbolical ceremonies, he was then to go free.

Sooth to say, however, in these early times there were many ways of escaping or of wresting justice. In certain cases, such as accusations of homicide, violent robbery, treason, &c., the accused had the right of an appeal to the wager of battle; and elaborate precepts are set forth in the law, for the order and arrangements of the duel. Those whose courage was not equal to this forcible mode of defence had the option of resorting to the trial by ordeal, which is thus described in the Alemannic laws: "Man sol im dri wal fur tailen, die wazzer urtail oder in ainen kessel vol wallendez wasserz untz an den elentogen grifen, oder daz haizz ysen uf der hant ze tragen, Geriht er damit, so ist der urtail ledig." "For the sentence there shall be three choices: the water ordeal; the putting the arm up to the elbow in a vessel of boiling water; or carrying a hot iron in the hand; if he clears himself by either of these methods he shall go free."

The cold water ordeal here alluded to consisted in casting the accused into a deep pool or stream. If he floated he was adjudged guilty; if he sank, and was probably drowned, he was acquitted. The whole system of ordeal was calculated to evade justice; since it is difficult to see how, without collusion, any person exposed to it could possibly escape.

But when all these methods failed to exonerate the accused, there was still left the method, so rife in the olden times, of bribing the judge. It is not often that purchasing justice is found sanctioned in a code of laws, but in the Alemannic code it is actually embodied in a chapter entitled, "How justice may be bought."

The naivety of the passage is worth quoting: "Und mag ain man sin recht anderz niht haben, er gebe dem Rehter

gut, und andern die darzu gehörent, und die hievor genennet sint. Wir raten im e daz er sin Reht verliese, daz er sin gut e gebe. Ez ist bezzer ain wenig ze geben, denn ain michel tail verlorn."

"If a man cannot otherwise get his rights, unless he gives money to the judge and to the others who belong to him, whom we have before indicated, we advise him, rather than lose his cause, that he shall first give his money. It is better to give a little than lose a great deal."

From what has been already stated, it will be seen that the prevalent offences were violence and rapine. Men had not forgotten the period antecedent to all law, when every man claimed the right to avenge himself. Indeed, this right is expressly acknowledged in the laws of King Alfred, No. 42, Tit. "Be Feathum," where a man is forbidden to fight before he has demanded justice, but failing to obtain this he is at liberty to besiege his enemy.

It would be easy to draw a fearful picture of a state of society in which a man might slay his neighbour and burn the body, and compound for his offence by the payment of a fine of 500 shillings;* where it was lawful, for any or no cause, to murder the servant of his neighbour, on merely paying his price in the market;† where a man had a legal right to sell his own children for slaves;‡ when open warfare by one private individual against another was authorised as above; but this would be a very partial and unfair judgment of the times of which we are treating.

It must be remembered that the evidence of the laws shews only the worst side of human character, and is at best only negative. The laws of the present day, from the crimes

* See *Leg. Salic*, tit. 74, *De chreodiba*.

† See *Leg. Salic*, tit. 37, *De homicidiis servorum*.

‡ "Verkauffet ain man sin kint durch chafft not, das tut er wol mit reht." "If a man sells his children for a sufficient reason, he has a right so to do."—*Jur. Aleman.*, c. 347, *Der sin kint verkauffet*.

which are specified and made punishable, might lead to an inference very unfavourable to modern civilisation. The laws themselves can give no indication of the extent to which particular offences may be prevalent, and the statutes may remain, long after the offence denounced has disappeared from society. We must not forget that it is out of these institutions that German and English progress have been developed ; that the customs and manners of which we are treating have aided in stamping on the Teutonic character that union of individual self-reliance and capability of combination, that self-denial, perseverance and energy which have enabled them to pioneer the world.

In the statutes themselves, we have many indications of a spirit of even-handed justice and love of right. In the laws of Ethelred we find this passage ; “ and always, as one shall be more powerful in the eyes of the world or higher in degree, so shall he the more deeply make bot for sins and pay for every misdeed the more dearly, because the strong and the weak are not alike, and cannot raise a like burthen ; moderation is therefore to be used, and discreetly are to be distinguished both in divine shrifts and in secular corrections, age and youth, rich and poor, hale and unhale, and every order. And if it be that any one unwillingly or unintentionally do anything amiss, he shall not be like to him who misdoes intentionally and of his own will. “ Let every deed be carefully distinguished and doom ever be guided justly.”

In another part of the same laws, we read exhortations “ to comfort and aid God’s poor ; that they should not oppress widows and step-children, but willingly gladden them ; that they do not vex or provoke foreigners or comers from afar ; that they do not command injustice to other men ; but that every man enjoin to others that justice which he desires shall

be enjoined to him according as it is reasonable; and that is very just law.*

Concerning the everyday life of the early Franks we have not much record; Gregory of Tours is almost the sole authority. In his history of the Merovingian period, there is much which is intensely interesting. The story of St. Fredegonda, Queen of King Clothaire, with her education, intellect and refinement, at the barbarous period of the sixth century, constitutes a romance which will well pay perusal.

Of the domestic life of our Anglo-Saxon ancestors, we have much more ample details. In the eighth century they had attained considerable cultivation, though still simple in their manners. The legend of the poet Cœdmon, narrated by Beda, gives a peep into the interior life of the period. Cœdmon was a poor cowherd, who had lived to middle life without any education or training. At the entertainments of that time, it was customary for the harp to be passed round from hand to hand, each person in turn reciting or singing a song, with the accompaniment of the instrument. Poor Cœdmon, as the instrument gradually approached him, feeling his ignorance and incapacity, arose for very shame, and hied home to his house. This he had done several times, till, on one occasion, after going to the shippon and attending to his beasts, he threw himself down in despair and fell into a sleep. In this state a vision appeared to him. He heard a voice calling him by name, saying "Cœdmon, sing me something." To which he replied, "I cannot sing, and never could: even now I have been obliged to quit the company because of my inability." The voice rejoined, "Nevertheless thou mightest try to sing for me." He replied, "What shall I sing?" The voice said, "Sing about the creation." "Then," adds

* *Laws of Ethelred*, 6 sec., 46, &c.

the legend, "he burst into song, with words which he had never heard," being the poem on the creation, well known to Saxon scholars, to which some have supposed Milton was indebted for some of his noblest conceptions. He then arose from sleep, with his song fresh in his memory, and went on composing until morning, when he hied him to the *tun-gerefa*, or chief magistrate of the place, and told him of the gift which he had received. This dignitary took him to St. Hilda, the Abbess of Whitby, who, after testing the dumb poet who had found a tongue, called a council of learned men and scholars, who, after due examination, acknowledged his pretensions, and induced him to devote himself to a religious life in the neighbouring monastery. Here he spent many years, turning into Saxon verse the various themes of Divine revelation, and, after a long and blameless life, finished his course with the praises of God upon his tongue. When he lay on his death-bed, he inquired how near it was to the hour when the brethren should arise and sing their matin-song. They answered, it was not far off. Then said he, "Well, we will wait until then;" and so they signed him with the sign of the cross, and, his head declining on the pillow, he fell into a gentle sleep, and so passed away.

The concluding words of the story I must give in the original.

"Ond swa wæs geworden, thætte swa swa he hluttere móde, and bylewite and smyltre willsumnesse Drihtne theowde, thæt he eac swylce swa smylte deathe middan-geard wæs forlætende, and to his gesyhthe becom. And seo tunge the swa monig halwende word on thæs Scyppendes lóf gesette, he tha swylce eac tha ytemestan word on his herenesse, hine sylfne seniende and his gast in his handa bebedende, betynde."

"And so it came to pass, that even as he served the

Lord with a sincere mind and simple and gentle devotion, in such wise he was dismissed from earth with a gentle death, and attained the (heavenly) vision. And the tongue which had uttered many wholesome words on the love of the Creator, even the last utterances in his praise, blessing himself and committing his soul into His hands, so came to silence."

Whatever inferences we might be disposed to draw from the laws, and however rude in many respects the state of society in the ninth century might be, the people for whom this was written in their native tongue must have had much that was gentle and noble in their feelings and habits.

At this point we are naturally led to take a glance at the mental condition of the Teutonic races at this early period, when Tacitus says, "*Literarum secreta viri pariter ac femine ignorant.*"* This must be taken with some qualification. It is quite true as regards the Greek or Roman method of writing, but there are indications that the Runic system of notation and letters was in existence previously. The following passage of Tacitus has been a puzzle to his editors and annotators. In reference to the mode of taking auspices and casting lots, he proceeds: "*Virgam, frugiferae arbori decisam, in surculos amputant, eosque notis quibusdam discretos, super candidam vestem temerè ac fortuitò spargunt: mox si publicè consuletur, sacerdos civitatis sin privatim, ipse paterfamiliae, precatus deos, cœlumque suspiciens, ter singulos tollit, sublato secundùm impressam ante notam interpretatur.*"

Nothing could more clearly indicate the Runic method of writing, as it would be described by a person ignorant of its true meaning. The "*virguli*," or twigs, of Tacitus, are equivalent to the "*Buch-staben*," or beechen rods, of the

* *De Mor. Ger.*, sec. 19.

Runes ; and the “notis quibusdam,” the “impressam ante notam,” are the cuts, scratches, and lines which indicate the letters. These were originally cut on the edges of the staff, and when the system was transferred to engraving on stone, or writing on parchment, the upright staff was still represented, and the letters distinguished by lines issuing from it. This system could only be limited in its application, and was superseded, first amongst the Goths of Mœsia, in the fourth century, by an alphabet invented by Bishop Ulphilas, founded on the Greek ; and amongst the Franks and Anglo-Saxons, in the fifth and sixth centuries, by alphabets derived from the Latin. The Anglo-Saxons attained to great eminence as scribes and illuminators. At the time of king Alfred, literature was certainly in demand. The Scriptures had been translated into the native tongue, and Alfred himself translated Bede’s *History*, *The Philosophy of Boethius*, Apollonius of Tyre, and the *History of the World* by Orosius, for the use of the common people.

Amongst the Franks the gospels were translated in the seventh century ; and about the tenth century Willeramus translated the Psalms into the Alemannic or old High German dialect.

Handwriting amongst the laity of the Franks and Alemanni was extremely rare. Indeed it seems to have been regarded with suspicion. Deeds were usually executed with the seals of the parties, and witnesses do not appear to have been insisted on. In the case of a party signing his name the law says, “Swær hantvest machet, der sol zu dem minsten, siben man setzen, daran die geziuge sien ; ist ir mer daz ist auch gut.” “Whoso signs his name, must have at the least seven witnesses ; should there be more, it is well.”

The witnesses were allowed to append their seals in place of signing.

We have not in the laws many indications of the condition of manufactures and the arts.

By the Alemannic code it was not lawful to erect a building more than three stories high, without the consent of the *Lantrihter*, or magistrate of the district. A wall might be built round the court, but not of greater height than could be reached by a man sitting on a horse; nor was it allowed to have the wall crowned with a battlement or parapet.*

Even at this early period the vexed question of injury to light by adjoining buildings was the subject of legislation.

“Und zimmert ain man ain huse, un will sin nachgebur ain hus an in zimmern, so sol erz in der hoehe rihten daz sin licht niht verzimmert werde.”

“If a man builds a house, and his neighbour builds another adjoining, the latter shall so carry it up that the light of the first be not injured.” Then follow directions as to procuring satisfaction.

Connected with this is rather a quaint, but effective law. “If any one shall build a boat or anything else with another man’s timber, the boat shall belong to the man whose timber has been used.”

The king’s highway (*kungez straz*) was to be sixteen feet wide, for the alleged reason that two vehicles might pass each other. The bridges were so narrow that it was necessary to enact a law, that the first comer, whether loaded or unloaded, should have the right of way. Whoever came first to the mill was to have the prior right of grinding.

Corn mills were of such importance that they had to be protected by special legislation. By the Salic laws, whoever stole corn from a mill was subject to a penalty of 600

* *Jus Aleman.*, c. 132.

denarii to the miller, and the same amount to the owner of the grain, besides restoring the goods stolen, or their value.

Buying and selling were subject to various restrictions. In the laws of King Edward the elder, and of Athelstan, it is enacted: "Ond we cwædon thoet man nœnne ceap ne ceapige butan porte ofer twentig penega, ac ceapige thœr binnan on thœs port-gerefan gewitnesse, oththe othres unlygenes mannes; oththe eft on thara gerefena gewitnesse on folc-gemote." "And we ordain that no man buy any goods without the port above 20 pence, but he must buy therein, on the evidence of the port-reeve or other credible man; or, after, on the evidence of the reeves at the folk-mote."

The term "port" is borrowed from the Roman law: "Portus est conclusus locus quo importantur merces et inde exportantur." These restrictions on commercial transactions were doubtless imposed in order to secure the tolls, or market dues.

All transactions amongst the Anglo-Saxons required to be verified by witnesses. The laws of King Ine (about A. D. 700) enact that if a chapman traffic through the country, he must do it before witnesses. If this was not done, and any stolen property could be traced to him, he had to pay a fine of 36 shillings.

Trade of any kind is scarcely noticed either in the Salic or Alemannic laws, and we have little means of ascertaining the condition of industry in those countries from the fourth to the tenth century. The colloquy of Archbishop Alfric gives some idea of the trade of England in the tenth century. The mariner is asked, "Hwylce thinc gelœdst thu us?" "What goods dost thou bring us?" The reply is, "Poellas and sidan, deorwyrthe gymmas and gold, selec the reaf, and wrytgemange, win and ele, ylpe ban and mœstling, œr and tin, swefel and glœs, and thylces fela." "Purple

and silk, precious stones and gold; various garments, perfumes, wine and oil; ivory, brass and tin; sulphur, glass, and many other things."

The mention of tin amongst the imports is somewhat singular. We should rather have expected to find it an article of export. We have no distinct account of the exports which went to pay for these articles of luxury. Wool and fells no doubt formed a large proportion. Horses were also in demand, and there is reason to believe that slaves were sent abroad in considerable numbers, even down to the time of the Conquest.

The coined money in use amongst the Franks, consisted of *solidi* and *denarii*, one *solidus* or *sol* being equal to forty *denarii*. The *solidus* was originally a gold coin, and in the fifth and sixth centuries, was the price of an ox. By successive and constant deteriorations, from gold to silver and silver to copper, it at length degenerated into the French copper *sou*. Bearing this in mind, the *solidus* in the Salic laws must have been equal in purchasing power to at least £10 sterling. The fines, therefore, imposed by the laws were sufficiently heavy as a punishment. Fifteen *solidi*, equal to £150 sterling, seems a very severe penalty for squeezing the hand or finger of a woman, and would one may think be a sufficient protection for the fair sex under ordinary circumstances.

Amongst the *Alemanni*, the coins were pounds, shillings and pence, as with us; the purchasing power much greater, from the greater scarcity of precious metals. The Anglo-Saxons had a great variety of coins. The pound, shilling and penny, with their subdivisions, have descended to us. Their relative value as well as their purchasing power, have undergone many modifications before settling down to their present condition.

The laws and customs connected with the tenure of land,

at the period we are treating of, are curious and interesting. Amongst the Franks wills were unknown. Succession to property was imperative, according to a fixed rule. This law of succession presents a singular admixture of the admission of female rights in some cases, and the abnegation of them in others. If a man died and left no sons, his father or mother, if living, succeeded. If the parents were dead, the brothers and sisters had the next claim; thence it went to the sisters of the father, then to the sisters of the mother; failing these, to the next of kin by the father's side. Then comes the remarkable proviso, "*De terra verò Salica, nulla portio hereditatis mulieri veniat; sed ad virilem sexum tota terrae hereditas perveniat.*"* These few words constitute the celebrated Salic law, which has powerfully influenced the destinies of some of the greatest kingdoms of Europe. There is an apparent contradiction between the former and the latter portions of the law; females having a preference in the earlier clauses, but being absolutely cut off by the last. Two explanations may be given of this. The *alodis* may be understood to include the personal or moveable property, as in other cases it is known to have done; or the "*terra Salica*" may apply only to the conquered lands held by military service.

In the Alemannic and Anglo-Saxon laws wills are recognised, but the succession to land is strictly limited to the male issue, so long as it exists. In neither, however, is there the same absolute prohibition of female inheritance, as in the Salic laws. In the laws of Alfred it is enacted that if a man has land descended from his ancestors, he shall not dispose of it out of his own family, but there is no limitation in favour of heirs male. The laws of Henry the first adopt the Salic law of inheritance almost word for word, the singular

* *Lex Salic*, c. 42, *De alode*.

preference of the female line in certain cases included; but the prohibitory clause is qualified as follows:—“*Dum virilis sexus exstiterit, et hereditas ab inde sit, femina non hereditetur.*” This is still the law of England in relation to landed property, modified, however, by the power of disposing by will.

By the Salic law, although lands could not pass by will, they might be alienated during life time by going through a formal process, and with the consent of the king.*

The feudal system of military tenure is recognised in the Alemannic laws,† but is not found either in the Salic or Anglo-Saxon codes.

By the Salic law it appears that the fields were surrounded with hedges, as with us; severe penalties are imposed on injuring or defacing them. Trespass, especially amongst growing crops, was visited with a heavy fine.

The laws connected with religion present remarkable differences amongst the three nations which we are considering. There is every probability that the Salic laws were enacted before the conversion of the Franks to Christianity, though doubtless revised thereafter. The only reference in these laws to religion is the 58th: “*De incendio Ecclesiae sive homicidiis clericorum,*” which enacts that the burning or exspoliation of a church shall be compensated by a fine of two hundred sols. Whilst the *wer-geld* of an ordinary freeman was fixed at two hundred sols, the homicide of a deacon was four hundred, and of a priest six hundred sols. It is evident that up to that period, probably about the reign of Clovis, the ecclesiastics had not attained any very high degree of ascendancy.

Turning to the Alemannic code revised by Charlemagne

* *Lex Salic*, tit. 48, *De affatomiæ*.

† *Jus Aleman.*, c. 3, *De septem clipeis militaribus*, c. 18, *Quod Dominus Castri*.

in the eighth century, we find, as we might naturally expect from the hand of the great champion of the Church, the whole code imbued with ecclesiastical influence. After the introduction, which is the form of a religious homily, immediate reference is made to the Pope, as the source of all authority on earth: "Daz ist der Babest, dem Got gewalt verlihen hat, der sol an Gotez stat rihten hie uff ertrich untz an den jungsten Tag." "This is the Pope, to whom God has granted power, who must in God's stead judge here upon earth to the last day." The whole code breathes a fierce spirit of persecution and intolerance. The first chapter enacts that if any person has been for six weeks and a day under the ban ecclesiastic, he must be handed over to the secular arm for punishment.

Respecting heretics, the ecclesiastics have to enquire and judge, and, if convicted, they are to be handed over to the secular arm; then, proceeds the law, "Dem geriht ist also, man sol si brennen uf ainer hürde." "Their sentence is, to be burned upon a hurdle." Whoever aided them was to be subject to the like punishment. Any prince supporting or cherishing heretics was to be forthwith excommunicated, and if within a year he did not repent, he was to be deprived of all his lands and dignities. "Ditz," says the law in continuation, "sol der Babest kunden dem Künig und allen weltlichen Rihtern die suln dez Babestz geriht uest machen mit ir geriht." "This the pope shall make known to the king and all secular judges, that they may confirm the pope's decree by their authority."

The right of sanctuary was of course claimed and exercised by the priests, who in every part of the code override the secular jurisdiction.

Far different from this is the spirit of the Anglo-Saxon laws. From the reign of Ethelbert, in the sixth century, down to the conquest, there is not in the

numerous codes handed down to us any trace of religious persecution. The priest is liable in the same manner as the layman to the secular law. No difference is made between his *wer-geld* and that of any other subject of equal rank. In fact, he seems to have required special protection, being classed with the foreigner in the laws of Edward and Guthrum (about A. D. 900). "Gif man gehadodne oththe æltheodigne thurh enig thing forræde, æt feo, oththe æt feore thonne sceal him cyng beon oththar eorl thær on lande, and bisceop there theode, for mæg and for mund-boran, buton he elles otherne hœbbe." "If any one injure a priest or a stranger, either in goods or life, then shall the king or the earl of the district, or the bishop of the people, be to him for kinsman and protector, unless he have another."

Priests neglecting their duty were amenable to secular law. If a priest misdirected the people as to a festival or a fast, he was to pay a fine of 30 shillings amongst the English, and three half-marks amongst the Danes.

The bishop occupied a very important and dignified position amongst the Anglo-Saxons. The first law of the earliest Anglo-Saxon code enacts that the bishop's property, if stolen, shall be restored eleven-fold. He is the only man besides the king whose word was to be taken without an oath. "Biscope's word and Cyninges sie unlœgne buton athe."* His *wer-geld* was fixed at the same amount as an ealdorman's, 8000 thrymsas. But with all his honours he was amenable to the law, even for neglect of clerical duties. "Let the bishops and abbots," says the ordinance of Ethelred (A. D. 1008), "submit to the law, and live according to their rule."

There is in many of the Anglo-Saxon codes a noble sense of righteousness, justice, and freedom. Take the

* Wilttræd's *Dooms.*, No. 16.

following introduction, from the *Liber Constitutionum* of Ethelred, A. D. 1008.

“This is the ordinance that the king of the English and the ecclesiastical lay ‘witan’ have chosen and advised.”

This is the first; that we all love and worship one God, and earnestly hold one Christian belief, and every heathenship entirely cast out; and this we all have both with word and pledge confirmed, that under one kingdom we will hold one Christianity.

And the ordinance of our lord and of his witan is, that right law be established, and every unlawfulness earnestly abolished; and that every man be regarded as entitled to right; and that peace and friendship be rightly observed within this land, before God and before the world.”

This is not mere verbiage, for the whole detail of the laws is carried out in the same spirit of justice and freedom. In perusing these old laws, amusing illustrations of manners and customs occasionally crop up. Amongst the Franks the hair was worn long by both sexes, and was an object of great pride and attention. Cutting off the hair, or shaving, was considered a great disgrace. We find in the Salic code the following law: “Si quis puerum crinitum sine voluntate parentum totonderit, mille octingentis denariis, qui faciunt solidos quadraginta quinque, culpabilis judicetur.” To shave the head of a girl was punished with the heavier penalty of 62½ sols, or 2500 deniers.

Calling names has been a weakness of human nature in every age, and when carried beyond a certain pitch is usually subject to punishment. The Salic code informs us what were the complimentary epithets visited with punishment 1300 years ago. If one called another a little fox, “vulpeculum,” he was fined three sols; but if he called him a hare, “leporum,” he had to pay six sols fine. For a man to call his neighbour “squint-eye” involved a penalty

of 15 sols; but if a lady had an imputation cast on her chastity, it involved a fine of 45 sols.

Our Saxon ancestors were fond of convivial parties and ale drinking, as many of their descendants continue to be. In the laws of Hlothære and Eadric (seventh century), it is provided that if a man draw a weapon where men are drinking, even if no harm ensue, he must pay one shilling to the master of the house and 12 shillings to the king; if blood be drawn, he must pay 50 shillings to the king.

The insecure state of society at that period is shewn by the following law of King Ine (seventh century); "Gif feorcund mon oththe fremde butan wege geond wudu gonge, ne hrieme ne horn blawe; for theof he bith to profianne, oththe to aliesanne." "If a farcoming man, or a stranger out of his way, passes through a wood, and neither shouts nor blows his horn, he is to be considered a thief, to be either slain or fined."

I feel that I have extended this paper beyond the ordinary limits, but much more would be required to render the picture complete. The character of a nation is certainly exhibited in its laws; and in comparing the codes of the different Teutonic races in early times, it is pleasant to find in the Anglo-Saxon codes a spirit of justice, freedom, kindness and goodwill, which compares advantageously with the rude simplicity of the Salic code, and the complicated verbiage and intolerant enactments of the Alemannic laws. A fiercer and more repressive system was introduced at the Conquest, but by degrees the Old English spirit of individual freedom and equal justice again asserted its right, and finally gained the ascendancy; and at a future and distant day, should any curious antiquary institute an inquiry into the laws of England in the nineteenth century, with the object of throwing light on the character of

the people, he will find, on the whole, that the tendency and nature of our institutions could not be better described than in the noble words of King Ethelred, 850 years ago, with which I will conclude.

“It is the ordinance of the ‘witan,’ that Christian men be not, for altogether too little cause, condemned to death; but in general let mild punishments be decreed for the people’s need; and let not for a little God’s own handiwork be destroyed, which he dearly bought; but let every deed be heedfully distinguished, and doom according to the deed be moderated in degree; so that before God it be fitting, and before the world bearable. And let him who judges others bear in mind, very seriously, what he himself desires when he thus speaks, ‘And forgive us our sins, as we forgive others.’”

SEVENTH ORDINARY MEETING.

ROYAL INSTITUTION, 27th January, 1868.

J. BIRKBECK NEVINS, M.D., VICE-PRESIDENT,
in the Chair.

Ladies were invited to attend this meeting.

Mr. Picton exhibited Westwood's splendid work, "Illustrations of the miniatures and ornaments of the Anglo-Saxons and the Irish," and the famous A.-S. fibula or brooch from the Mayer collection, which was dug up at Kingsdown in 1771, by the Rev. Brian Fawcett. Mr. Picton then entered into a series of observations, with reference to the discussion on his paper at the last meeting, in which he cited proofs from Lappenberg, Kemble, &c., in support of certain facts he had advanced in his paper, but which had been questioned during the discussion.

Mr. Flück next exhibited several specimens of relics and other antiquities from the Lacustrine dwellings of Switzerland, and gave an interesting account of the origin and progress of these discoveries.

After the discoveries made in 1853-54, by Dr. F. Keller, at Meilen, on the Lake of Zurich, which he fully described shortly after in his work, "Die Keltischen Pfahlbauten in den Schweizerseen," many others, who took an interest in archæological matters, made researches in the different Swiss lakes, and the result was that up to 1864 more than two hundred of these "pfahlbauten," or lake dwellings were discovered. During the summer of that year the

attention of M. de Bonstettin and Dr. Jahn, professor of archæology at the University of Berne, was drawn to a spot in the Lake of Morat, near Greng, a chateau belonging to Count de Pourtalès, and situated about half way between the towns of Morat and Avenche (ancient Aventicum).

Up to that time this peculiarly constructed spot had always been considered by the inhabitants of the district as the remains of an ancient jetty, built by the Romans; but when the above-mentioned gentlemen brought to light a number of axes and chisels made of nephrite, set in stag-horn handles, implements made of flint, wood, and bones belonging to different animals, &c., it was evident that the structure was a lake dwelling, belonging to the earliest period of the stone age.

Further researches had to be abandoned on account of the high level of the water, and it was only in autumn, 1865, that the entire structure and its relic bed were properly brought to light. Count de Pourtalès, desirous of converting the place into an artificial island, set a number of men to work, and it was during the process of dredging that all the beautiful specimens, which now compose the fine collection at Chateau Greng, were discovered.

Among the best preserved were celts and hammers of nephrite, beautifully polished; saws, knives, arrow-heads, &c., of flint; round perforated stones, the use of which has been differently explained. Some call them sling stones, being projectiles used in warfare; but considering the the beautiful workmanship, it is not very probable that they were used for that purpose. Similar stones, called hurling stones, were used by the Indians in a somewhat similar game as the Yorkshire "spell and knurr," and the game played by the Swiss peasants called "hornets." This explanation seems to have more in its favour than the former. Their use as weavers' weights is just as impro-

bable, because such weights were made of baked clay, and it is quite as likely that many of them were used as spindle-worles.

Other implements were made of bones, wood, and staghorns, such as needles, pins, bodkins, spoons, &c., Among the bones found were those of the martin, badger, weasel, wolf, fox, elk, squirrel, goat, aurochs, bear, boar, dog, &c. Of vegetable remains we have the cherry, wild apple, pear, wheat, flax, &c. The pottery is very primitive, with hardly any attempt at ornamentation, and is made of coarse clay mixed with fine gravel.

The construction of this settlement is the same as most of the others of the same age, and those having an interest in such matters will find the necessary information in the very interesting and instructive work of Dr. F. Keller, which has been translated into English. As to the origin of the settlers, the age of the dwellings, &c., the same book contains everything that can throw any light upon these questions. The specimens shown to the society, and which Mr. Moore has accepted for the Free Library and Museum, are all from the settlement at Greng.

The following Paper was then read :—

ON THE
JURISPRUDENCE & EDUCATION DEPARTMENTS
OF THE
SOCIAL SCIENCE CONGRESS AT BELFAST.

BY MR. A. BARUCHSON.

ELEVEN years have passed since what we may now call another British Institution was first founded. I speak of the "National Association for the Promotion of Social Science," which was mainly originated, in conjunction with other able and zealous men, by Lord Brougham, the veteran philosopher, statesman and philanthropist.

Its utility, like that of many other new institutions, was questioned at first. As, however, meeting after meeting was held annually in the large centres of our commercial and industrial population, presided over and attended by the most eminent men in politics, science and letters, of this and other countries, the objects of the Association became better understood. Lord Dufferin, the President, in his address inaugurating the recent Congress in Belfast, defined its action thus:—

"The acquisition of such knowledge as will enable the human communities, by which the earth is inhabited, to reach the highest limit of physical and moral well-being, which is compatible with the original condition of their existence."

In 1862, an International Social Science Association was formed in Belgium, for the same purpose as ours. The General Secretary, in his address at the opening of the first Congress in Brussels, thus described the programme of its intended operations: "To develop the study of the social sciences, to guide public opinion towards the most practical

means of improving civil and criminal legislation, to perfect and generalise instruction, to extend and determine the mission of literature and art in modern society, to augment public wealth and direct its proper distribution, to ameliorate the physical and moral condition of the labouring classes, and lastly, to aid in the diffusion of all those principles which give force and dignity to nations." The speaker added, that the Congress was desirous *not* to obtain decisions on the controverted subjects, but to draw forth ideas, views and propositions, which could, in matters of legislation, art, instruction, benevolence, health and industry, remove doubts, dissipate shadows, disperse prejudices, and throw full light upon social science, which is constantly transformed, and for which the truth of yesterday is not that of to-day.

Although Lord Dufferin and Mons. Couvreur used different language in their definitions, the objects in view are nevertheless identical.

The annual meetings of the Association have already been held in Birmingham, Liverpool, Bradford, Glasgow, Dublin, London, Edinburgh, York, Sheffield, Manchester and Belfast. Besides the regular attendance of those members who take a special interest in the society, an accession of new members takes place in every town where the meetings are held. Information on many important topics, local and general, is given, and instruction afforded, by moving each year to a new centre, and exactly to and from those classes which exercise the greatest influence on society; nor must the important fact be overlooked that the audiences include a large number of the gentler sex, mothers, sisters, daughters, who not only have the power of aiding many of the useful and benevolent projects proposed and discussed, but, what is even of greater value, have the tender feelings, the loving and devoted hearts, to give a helping hand to every project that can benefit humanity.

The transactions of the annual meetings are published, and may be considered as “vade mecums” of social science in all its numerous ramifications.

It was my original intention to review some of the most important subjects discussed in each of the five departments of the Association; but, on consideration, I found that the time usually devoted by this society to a paper would allow me only to dilate on some points in connexion with the first two Departments, viz., those of *Jurisprudence* and *Education*.

The President of the first Department, on Law and Jurisprudence, Chief-Justice O’Hagan, an impressive and able orator, expressed himself strongly in his address on the imperfect education, and consequently the deficient attainments, of the legal profession of the United Kingdom, compared with Foreign (especially Continental) Jurists. Although he rejoiced to say there was exceptionally, in spite of these defects, a phalanx of great names, such as Romilly, Macintosh, Brougham, &c., which would have shed lustre on any profession or country, still he much regretted our short-comings in this respect. The time had arrived when a liberal culture of the law as a science was indispensable. The study of Roman jurisprudence, and of the codes and laws of foreign countries, was of great value, not only in our own immediate practice, but also in the great work of digesting a code of laws for this country; a work, which had long been wanted, was advocated by the three last Chief-Justices, and was emphatically approved by the Royal Commission in 1844 and the Parliamentary Committee in 1866.

It is stated that the judicial decisions and dicta on which the judgments now given in our courts are based, amount to no fewer than a hundred thousand, and are comprised in thirteen thousand volumes, the most compact

edition consisting of forty five densely printed quarto volumes.

The several points to which the President of the first department specially directed the attention of his auditors, and many of which afterwards became subjects for discussion, were :—

The Condemnation of Centralisation of the Law Courts in London. Whilst he considered the harmonious decision of all the Courts most desirable, and that the judgments should be uniform and homogeneous, local courts, with local bars of men of talent, were equally indispensable and more in harmony with the British principles of self-government and de-centralisation. He did not think that London should be the legal metropolis of the United Kingdom. What he desired was, an assimilated code, but independent judicature. We have ourselves proofs in Liverpool of the disadvantage and positive injury occasioned by the centralisation of some departments of justice in the metropolis. I may name the Admiralty, and also the Chancery Court, especially the former, which operates to the great detriment of our merchants and shipowners. Happily, our Chamber of Commerce has for some time past endeavoured to get the jurisdiction of the Admiralty Court extended to Liverpool, with an independent Judge; and I trust the time is near when this request, so urgently needed, will be granted.

The speaker then alluded to International Law, which must undergo modification to adapt itself to the altered times in which we live. The dispute about the *Alabama*, between this country and the United States, is sufficient proof that International Law must be more clearly defined, in the interest of an enduring peace, and in order that reciprocal protection may be extended to the interest of commerce.*

* The Hon. Dudley Field delivered an able address on International Law, on the closing day of the Congress.

He was also desirous that perfect security should be established for the property which intellect creates. He further advocated the importance of a Public Prosecutor for England, as also a Court of Criminal Appeal, rather than that the responsibility and power should be longer placed, *in matters of life and death especially*, in the hands of the Home Office. I believe that England is the only country in Europe where no Public Prosecutor, nor a Criminal Court of Appeal *on facts*, exists; even in Ireland and Scotland, the former official is ingrafted on the administration of justice; and it is well understood that many evil-doers in England escape punishment for want of so important and useful an officer as a public prosecutor. Justice O'Hagan further recommended that the Encumbered-Estates Court should be extended to this part of the United Kingdom; and that the Registration of Titles recently introduced in England might become a reality, and be extensively availed of by less cumbersome and less expensive processes. The Chief-Justice reminded his hearers that in this and other legal respects Ireland had long been in advance of England.

The laws relating to the property of married women were also alluded to during the Congress, as most unsatisfactory and unjust, often leading to a degree of suffering, by mothers and children, much to be deplored. We are in this respect greatly behind our French neighbours. These all were considered deserving the attention and serious consideration not only of those who study jurisprudence as a profession or as a science, but of a reformed Parliament, that by wise legislation we may maintain the settled order in which progress grows.

Revision and Restoration of Local Administration of Justice, as it existed during the Roman, Norman, Lancastrian, and Tudor periods, was mentioned at this Congress, as it had been also at previous ones. Our forefathers

seem to have been better aware than we are, of the necessity for local courts in commercial centres, to settle differences and suits, as it was an established rule that, when and wherever a fair was held, a court should daily sit, although that court often consisted only of the manorial chief. If it was necessary then, how much more stand we in need of it now, when in one hour the transactions in a town like Liverpool are probably of greater importance than the whole transactions at one of these fairs. In course of time Local Permanent Courts arose from these fairs; we still have one such in the Passage or Borough Court, which might well be remodelled, and its jurisdiction so enlarged as to answer all the purposes of commerce. It certainly would be more congenial to English ideas and practice than the tribunals of commerce abroad. On this subject also, the Liverpool Chamber of Commerce held some time ago a conference with the Law Association, which showed every disposition to act in harmony with the Chamber's suggestions. Similar ancient Courts of Record in Manchester and Salford are about to be amalgamated, and are to hold daily sittings. I am aware the County Courts do partially supply the want of permanent courts, but their jurisdiction is limited to small amounts.

Justice O'Hagan expressed himself warmly on the withdrawal of the Professors of the Irish language from the Queen's and University Colleges in Ireland, by which the study of such authors as O'Curry and O'Donnovan will be lost to the Irish student. This fact surprised me not a little; and appeared to resemble somewhat the action of Russia with the Poles, who are compelled to abjure their national language; and also of the Government of the Netherlands previous to the Belgian revolution, when Holland forced Belgium to plead, and to furnish all legal documents, in the Dutch language, which was one of the causes that led to the

revolution in 1831. The difference in the jury-laws between England and Scotland was also discussed, and on the whole, the Scotch system, where a majority of nine, after three hours' sitting, may form a lawful decision, was considered the more desirable.

In passing from this department to my next subject—Popular Education—I must commence with a remark which applies equally to Education, Medicine, and Law. Strong objection may be made to the mode by which many students for the legal and medical professions are instructed or prepared for their high calling; and to the facility with which they obtain those important positions on which in one case the life and health, and in the other the prosperity and often happiness and misery, of families and individuals depend.

In Holland, Germany, and on the Continent generally, a member of the one or other of these professions usually studies three years at one of the universities, having first passed through a course of some years' instruction at a gymnasium, in the classics and modern languages, mathematics, ancient and modern history and literature, natural philosophy, political economy, &c. Finally, the examination and promovation of the candidates for either profession are of the most searching description.

Now, how do matters stand in this country? We have two renowned and ancient universities, but their beneficent action is so circumscribed, and they are hampered by so many restrictions and ancient regulations and customs, that but a very limited number of the two professions come from either university. It was stated at a previous Congress, by the Rev. B. Zwecke, chaplain to the Queen, that "in the capital of an agricultural county, with a population amounting to more than 40,000, there was not a single individual, with the exception of some of the clergy, who had received a

university education. In fact, this disregard had now become so wide-spread, that if the bishops were to withdraw the rule they generally act upon, requiring from candidates for holy orders certificates, which imply a university education, our universities would literally collapse for want of students."

In a recent work by the Rev. Mark Pattison, the Rector of Lincoln, *On Academical Organisation*, these statements of Mr. Zwecke are fully confirmed. He shews that "the universities, especially Oxford, lose their hold more and more on the wealthier classes, and one-third of the students are paid by bounties for coming there."

Even the barrister, the *crème de la crème* of the legal profession, is not obliged to receive a university education. True, examinations have to be passed. These however are greatly assisted by what is usually called the art of cramming. In fact, the road is too easy to insure either talent worthy of the name or plodding mental labour. I find, on enquiry, that £10 has been lately paid to a crammer in London, who coached a candidate for his examination as solicitor; a moderate amount, forsooth, to obtain the diploma of the foreign *avocat* or even *avoué*.

It is then by no means surprising that the ordinary members of the legal profession, viz. solicitors, occupy a much higher position on the Continent than they do in this country. Even the chemists or dispensers of medicine on the continent, although they do not attempt, nor are they allowed to usurp, by prescribing medicines, the place of the regular medical practitioner, have to receive instructions, or attend such lectures as will enable them to pass an examination in medical botany, chemistry, and compounding of medicine. Hence the apothecary or chemist is considered a *bona fide* member of a learned profession. I know of at least one instance in Holland, and in the town in which I resided, where the chemist I employed was called from the

dispensing of medicine to the professorship of chemistry at the university.

But I rejoice to see signs of better things in professional education. These defects have not escaped the attention of the leading members of the legal and medical professions, and stricter measures have been, and others are about to be, adopted, to improve and extend the education of those who aspire to legal or medical honours and emoluments.

It was argued and admitted at the Congress that though many reforms had been introduced at the universities, many more were required. The fellowships had been turned from sinecures into prizes, but they were sinecures still; and the whole system of prizes and of educational endowment generally needed revision. The requirement of celibacy was almost universally retained. This is fatal to any institution in which it is imposed. Where the rule of celibacy remains, the lay-fellows will go off to other colleges, in which they can marry, and desert educational pursuits; whilst college tutors will continue to be clerical fellows, looking forward to college livings, and confining themselves to studies more or less connected with the clerical profession. Hence, clerical ascendancy predominates in Oxford, and in a minor degree in Cambridge also. Now, institutions which are *sectional*, cannot be *national*, nor educate the *nation*.

Our old universities should become the centres of a liberal education of the very highest order, the education of those who are destined for scientific and intellectual callings.

Let us hope that the universities of Oxford and Cambridge, as also Dublin, may, ere long, become like their sister institution in the metropolis, more enlarged and useful, and better adapted to the requirements of the age in which we live.

In dealing with Trinity College, Dublin, the same

principles ought to be applied; it should open its portals wide. In order to educate the youth of the Irish nation, it has to be expanded beyond the limits of sect or party, so as to embrace all students, and thus accomplish the objects for which universities are intended, viz., to give power and strength to the intellectual life of nations. To place universities on such unsectarian bases, with the motto of "equal rights to all religions, honours and emoluments to merit only," would do more to diminish ritualism in the church than all parliamentary committees, the unmeaning and fruitless periodical convocations of the clergy, or the powerless efforts of bishops and congregations.

Let me here refute the charges made by our esteemed and learned President, Dr. Ginsburg, in his inaugural address, against mercantile Liverpool, as inferior, in the patronage it bestows, and the interest it takes in art, science, and literature, to other mercantile towns in this and other countries. I stated my surprise at the time, and believed that my respected friend, who on the one hand like myself has travelled much, and on the other hand has resided sufficiently long in Liverpool, should have judged more correctly. To arrive at an impartial conclusion, we have to look at a merchant's occupation and life in a town known as more enterprising and more speculative than any other in Europe; a town comparatively of yesterday; not like Amsterdam, Antwerp, and Hamburg, the people of which are more phlegmatic, and where trade is pursued calmly on fortunes made in times past. Consequently, were it required, some apology might be made for the merchants of this town, but I believe no such apology is necessary. Our merchants may confidently be compared with those in the ancient seats of commerce, as well as with those of modern Europe.

We find in Liverpool not fewer than between forty and

fifty art collections, some of considerable value; besides these, there are but few houses without some works of art; and high prices are offered whenever any of merit are on sale. The London artists proclaim loudly, that they receive more patronage and support from the merchants and manufacturers of Lancashire, than from any other part of the United Kingdom; and I would ask, have Gibson, Spence, and Ansdell, three Liverpool artists, found no patrons in Liverpool? The tinted Venus of Gibson was a commission of a Liverpool merchant; so was the Angel's Whisper of Spence; and many others can be named. For several years two annual exhibitions have been maintained here. They were only discontinued through the jealousy and contracted ideas of the local artists; and I can testify, as one of the committee, to the cheerful, willing, and liberal support given to these institutions by the merchants of Liverpool, far beyond what could, I believe, be obtained either in any commercial city abroad, or even elsewhere in England.

I have observed that Mr. Gower, of Marseilles, connected formerly with Liverpool, has recently bequeathed his picture gallery, of considerable value, to this town.

And I am convinced, from the conversations I have had, that not many years will elapse, after the permanent Gallery of Art about to be built by the corporation is opened, before Liverpool will possess a collection of works of art, gifts from its wealthy inhabitants, either during their lifetime, or bequeathed at their death, which will reflect lustre on, and add to the intellectual enjoyment of, our town.

Such an institution of art will well harmonise with our temples of music, of which Liverpool may be justly proud. The Philharmonic Hall, erected at an immense cost by our merchants, is supported at a considerable expense annually, and not only is it always well attended by the wealthier

classes, but the galleries are equally well filled; a proof of the love of music among our people generally. Besides this noble building, we have the St. George's Hall and that gem—the Small Concert-room—continually in use, besides several minor halls.

Now as to Literature and Science. In addition to the gifts of the Free Library by a Liverpool merchant, and of a valuable Museum of Antiquity by another of her liberal and intellectual citizens, a respected member of the Literary and Philosophical Society; we find, not only gifts presented constantly to these valuable institutions, but they are also willingly supported by a municipal rate, voted by the Town Council, composed mainly of merchants.

A School of Science has been established, and is supported by voluntary contributions; and we constantly see gentlemen lecturing in the town and suburbs on useful and interesting subjects. A new, elegant and commodious Theatre has lately been erected; and, I need not say, all this is done by the public spirit of our merchants. Three educational establishments, the Royal Institution, the Collegiate Institution, and the Liverpool Institute, owe their existence to the desire of our wealthier citizens to impart a superior education to the youth of Liverpool.

We must not lose sight of the fact that our merchants live mostly in the suburbs, and that after a day of mental labour they have their libraries at home. There is scarcely a town-house or a suburban villa without one. Our daily and periodical press demand great attention, from the part which each Englishman is expected to take in politics, local and general. The voluntary and unpaid government of the docks and the town, and of the various useful and charitable institutions, absorbs also much time. My memory recalls a fact worth recording here. During the mayoralty of Mr. S. R. Graves, Mr. Petherick, Consul of

Khartoum, was in Liverpool; Mr. Graves called a meeting in the cotton sales-room, which was well attended. When Mr. Petherick explained his plans to assist Mr. Baker in the discovery of the sources of the Nile, subscriptions were at once liberally handed in to the Royal Geographical Society, to aid in this scientific discovery; and I am sure, were our merchants called upon to contribute to and promote in a greater degree, by their time and wealth, art, science, and literature in their native or adopted town, they would be found ready and willing, as they are in the other duties of enlightened and Christian citizenship.

How stands it abroad? Are the collections of works of art, or the libraries in private houses, as numerous as in this town? My knowledge of merchants' residences on the Continent is totally at variance with what our President in his address gave us to understand. Are they spending their evenings amidst literature, daily and periodical (if not more solid), in the family circle? No; you find many of the leading merchants all over the Continent in the evening at their clubs or cafés, unless they attend the theatre; and shall I say they are playing? no, *rather gambling*, rouleaux of gold being lost and gained! My introduction as a stranger into the clubs of Bordeaux, Marseilles, Brussels, &c., has enabled me to judge in this respect accurately; and I may safely assert, that whilst in Liverpool perhaps one gentleman in five may spend his evenings absent from his family, on the whole of the Continent, from Calais to St. Petersburg north, or to Palermo south, probably not more than one in five spends his evenings *at home*. You will agree with me that there is thus little chance of devotion to literary pursuits, or even to promoting the material, moral, and intellectual well-being of the lower classes, for which so many efforts are made in this town. But let us go a step further. Where and how are our young men, whether clerks

or merchants' sons, who are expected to be our future merchants, occupied in the evening, comparing them with similar classes abroad? I shall be glad to hear from Dr. Ginsburg, (and I regret his absence this evening,) that such organisations as the Philomathic Society, with its two hundred and fifty members, all, or nearly all, young men, the Chatham, the Young Men's Christian Association, and many other similar religious, literary, or scientific institutions existing in this town and its suburbs, are equally numerous and prosperous in Marseilles, Antwerp, Bremen, and Rotterdam, as they are in Liverpool.

More can scarcely be expected from our merchants, as their peculiar occupation is not favourable to their becoming authors or proficient in art and science themselves. All that is demanded from them is, to assist in supporting authors, artists, and such scientific projects and discoveries as will redound to the honour and advantage of the town or country. But we are at present even not altogether without mercantile authors in Liverpool. *The American Union*, by Mr. James Spence, is a work of considerable merit, and created a great sensation during the American struggle. Some portion of this work was objected and replied to by Mr. C. E. Rawlins, Jun. Both gentlemen are members of this Society. Our respected representative, Mr. S. R. Graves, published, not long ago, his *Excursion to Norway*, an interesting work. Recently, Mr. W. Rathbone, Jun., wrote a useful and able little volume on *Association in Benevolence*. Mr. George Melly is the author of *Khartoum and the White Nile*, as also of an amusing volume, *The School Days of a Fag*. Mr. W. W. Raffles contributed to our store of literature, his *Ascent of Mont Blanc*; and no doubt, were I to search, I might find many more merchant authors, who by the creations of their intellect do honour to this town. We may also view this matter still in another light. A merchant may be unable, amidst

the incessant turmoil and cares of mercantile life, to devote himself to literary and scientific pursuits; but to show his innate love of the same, he may urge and assist his son to embrace a learned pursuit as his profession. Have we not such instances in Liverpool, on which we may pride ourselves? I will only mention two, but there are doubtless many more. The first is the Master of St. John's College, Cambridge, Mr. Bateson, the son of the late Mr. Bateson, who was considered the father of the Cotton trade; and the second is one who combines in himself the scholar, the philosopher, the statesman, the financier, and the philanthropist; one who not only does honour to the town and country which own him as their son, but also adorns the manhood of the world; it is scarcely necessary for me to pronounce the name of the Right Hon. William Ewart Gladstone, the son of a Liverpool merchant.

I have too long detained you in vindicating the *intellectual* honour of the merchants of Liverpool in regard to literature, science and art. I wish I could vindicate in the same degree their *mercantile* honour and morality, of which, alas, we have had, for some time past, many instances to be ashamed of. I trust, however, that want of rectitude in mercantile transactions may gradually disappear, assisted by proper laws to punish fraud and misconduct. The great misfortune is that acts of this kind are not exposed as they ought to be, but are too often hushed up. An efficient check would also be given, and a just rebuke administered, if society were to discountenance the display made and the entertainments given by mercantile men whose commercial rectitude is of a doubtful character. We may commiserate misfortunes, but reckless and fraudulent over-trading, at all events, should meet with evident marks of social disapproval, and even abhorrence.

I must now return to the *Congress*. Although every

department had its salient points of interest, and warm debates took place on certain questions, the great battle was fought in the second section, that of *Popular Education*.

I must, however, make an observation before I proceed. My paper was written previous to our last meeting. Since then we have had a fortnight of educational agitation, consisting of—

Educational Conferences,

Educational *Conversazionés*,

Educational Dinners, and

Educational Leaders in the Daily and Weekly Journals.

Hence any trifling merit or new suggestion there might have been in my communication fourteen days ago has now passed away, as the subject has been spun threadbare.

While I regret this in one point of view, on the other I rejoice to see that the opinions I have held, and expounded from time to time, although often dissented from, have since our last meeting been advocated by various leading statesmen and scholars of the day; nor have these thrown any new light on the subject, so that I see no cause to alter anything that I have written.

Education continues to be the great subject of the day, as it has been the perplexing one for the last forty years; but the rapidity with which society and its various interests hurry forward in these times brings the necessity of educating the masses more prominently and urgently before us; creating an all-absorbing anxiety, as it involves our national future, whether we are still to occupy the high position that we have done hitherto, politically, socially and commercially, or whether the assertion of Ledru Rollin, uttered some years ago, that our decadence had commenced, shall become a verity. If this is not the case, and Great Britain is still to stand prominent among the nations of Europe, then the

instruction of not only the lower, but also the middle and higher classes, must be much extended and improved. Institutions must rise up in our midst like the *Real- and Gewerbe-Schulen* in Germany, the *Lycées* and *Ecoles Polytechniques* in France; or our colleges and grammar schools must be transformed into such, and our universities must scatter their fruits and rewards among all classes and professions, independent of religious or sectarian differences.

The question which attracted greatest attention was: *Is the national or denominational system of education best suited to the circumstances of Ireland?*

So strong was the anxiety to be present at this discussion, that the audience had to adjourn from the large lecture hall in the college, to the Presbyterian church opposite. My object is not to follow the discussion on education as regards Ireland only, but where it is of equal importance to the whole of Great Britain.

For many years past, the zeal of religious sectarianism, manifested by both clergy and laymen of all denominations, has been a great obstacle to the progress of instruction, among the humbler class especially. It is painful to contemplate that, owing to religious scruples, however sincere, the very objects for which the sectarians strive are in a great measure defeated. Suppose we place the matter before them in this light:—

“You object to tuition in secular knowledge—nay, even religious knowledge, unless it is instilled in your own mode, and by yourself; hence, a large number of the working classes remain without instruction, as is amply proved by the Registrar General’s statement lately, that $28\frac{1}{2}$ per cent. of all those who are married cannot read or write; and the criminal calendars show even a far higher per centage of ignorance. Now, what is the fact? Is religious knowledge spread by the dogged determination that two things must be

inculcated *together*, Elementary knowledge and Christian religion of a certain sectarian description?"

Reading, writing and arithmetic not only teach the mind its first steps, and quicken the latent powers of the intellect into conscious life, but they are also needed in our calling, to promote our success in the future, and to enable us to perform our duties as citizens. Reading *must* precede instruction in the contents of the Bible or Prayer Book; a plain indication which is to be taught first. The ignorance and irreligion of the masses must thus in part be attributed to the conscientious religionists, no matter to which church they belong.

True, sectarians have assisted in their own way to educate *some* of the population; but the good they have done has been in part counterbalanced by what has been left undone. Various projects, local and general, have from time to time been advocated, and been on the point of being carried, but for the opposition of one or other, if not of several, divisions of the Christian church. (We may trace the action of the same cause wherever education is most defective,—Spain, France, Austria, and Belgium,—where it results from the priesthood having had the monopoly of instruction. Whilst in Austria the education of the middle and higher classes is equally good as in Prussia, the elementary instruction, however, which till recently has been under the management and control of the church, is very defective.) Had our people been instructed in the past on an improved and enlarged principle, we should not now occupy the humiliating position of being far behind the United States of America, Germany, Holland, &c.

Happily, we are convinced of the fact, and the knowledge of our deficiency is the first step to an amelioration. Lord Brougham read a paper on the diffusion of knowledge at

the Social Science Meeting, held in Liverpool in 1858. His remarks were pertinent, and very applicable to the subject. He asked, whether one eye and one leg were not better than none; and if twilight were objectionable, was utter darkness more desirable? Thus it is with secular and religious education; have both together, where it is preferred and possible, *or* have the secular and religious instruction divided, if more convenient or more adapted to the circumstances.

You will easily conceive that the numerous speakers in Belfast, comprising ministers and laymen of all denominations, and of the three kingdoms, besides some foreigners, had each his crotchet on this interesting and important subject.

After due attention and reflection on the plans and arguments of the various speakers, it appears to me that the system pursued in Holland is the one nearest calculated to suit this country. The Dutch system for the instruction of the lower classes has, after a trial of more than half a century, answered fully the expectation of its promoters. I may here state that I am not in favour of any uniform system of education, nor of compulsion being adopted in this country, beyond what is or may be exercised by the Factory Act and Poor Laws. As an Englishman, I admire thoroughly the voluntary efforts, the independent and varied systems already existing in this country, far more than the stereotyped, centralised principle on which the instruction of the masses in Prussia and other countries is based. I believe that even the different sorts of school-books in use, and the varied systems of tuition pursued, in the United Kingdom, act beneficially, producing a greater variety of impressions on the intellectual faculties, and are more advantageous to the nation as a whole.

In Holland, instruction to the working classes is not

rigidly uniform ; nor is it compulsory, except in special cases similar to our own ; nevertheless education has advanced in an equal ratio to that of Prussia and other German countries, Switzerland or America ; viz., as great a number of the population can read and write, and as large a per centage of children attend the schools, as in any of the countries just named.

The only existing compulsion is in cases where parents obtain relief ; then the municipality or state steps in to educate their children on the ground that care must be taken that hereafter these children shall be able to support themselves, and not become burdensome to the country. For each day they are absent from school, without sufficient reason, a day's allowance of relief is withheld.

The present system of popular education in Holland was founded in 1806 ; and although many changes have from time to time taken place, the original principle remains intact. Numerous efforts have been made during the last half century to introduce compulsion, but have been invariably rejected, as unsuitable to the habits of a free people. Religious battles have also been fought in the Dutch Parliament to upset the secular school, and institute religious instruction, but without success. In 1811, Cuvier was deputed by the Universities in France to enquire into popular education in Holland, Germany and Switzerland. He described, in his report, the emotion of astonishment and delight with which he was struck at his first entrance into these schools ; and he added that the primary education was above all praise. In 1836, Cousin visited Holland on a similar mission from the French government, and his opinion was equally favourable. In 1840, the Governor of the province of Groningen, as also the municipality of the city of Haarlem, reported that there were no children, in either the province or town, that could not read or write. In 1861, Mr. Matthew Arnold, in reviewing

the history and progress of popular instruction in Holland, thus expressed himself:—

“Such is in Holland the present excellent situation of primary instruction; nowhere, probably, has it such thorough soundness and solidity. It is impossible to regard it without admiration.”

The excellent system of inspection, and the practical and professional training of the teachers, followed by a rigid examination, have contributed mainly to this great success.

Some of the inspectors are men of private means, and act *con amore*, without remuneration. The inspectors constitute the board of education, and are in direct communication with the Referendary, who may be said to be the President, and is only second to the Minister of Home Affairs (Interior), with which ministry the educational department is united.

Although only secular instruction is given in the primary, as also in the middle and higher schools, the statutes require that the instruction shall be such as to train the recipients for the exercise of all social and Christian virtues. No special religious teaching is to be imparted, nor the Bible introduced in the schools. Once or twice a-week some hours are set apart, when the scholars are instructed in religion by their respective ministers, priests or pastors. Sunday schools are also in active operation in Holland.

The minister and schoolmaster assist each other in their endeavours to promote religious and secular instruction.

The eminent men, from whose reports I have quoted, all state that although the schools are secular, nowhere has the instruction been more eminently religious, and formed men more pious and moral.

Let me here ask you, Is the religious instruction given by a minister of religion not preferable to that of the schoolmaster, whose office is totally different and of whose princi-

ples we are so uncertain that they may be rationalistic or ritualistic?

The public schools in Holland are primary, middle, and higher; these are all under the control of the town and provincial councillors, in conjunction with inspectors. The school-fees in all cases are moderate. When they do not fully meet the expenses, the deficiency is met from the local rates, or, if necessary, by the government. Beyond these three classes of schools, there are gymnasia, agricultural schools and polytechnic schools, nearly all of which have evening courses for those who are occupied during the day, and are similarly supported.

The schoolmaster, although already examined and admitted to the profession, has, when applying for a vacancy, to undergo a competitive examination with other candidates; three or six are generally nominated by the town or provincial council. Besides the required general knowledge, mental culture, school-method and pedagogic aptitude are considered of the highest importance.

Private and special schools are also allowed, and there are many denominational schools connected with churches and religious communities, as in this country, in which doctrinal religion is taught; they receive, however, no aid from the local or general government, but are nevertheless subject to inspection and require certificated teachers.

The instruction in the primary schools consists of—

Reading,	Geography,
Writing,	History,
Arithmetic,	Singing,
Grammar,	Drawing and Gymnastics.

And for the more advanced youths—

Rudiments of Algebra,
„ Philology,
„ Natural History.

Whilst in the middle and higher schools, the instruction includes—

English,	Political Economy,
French,	Book-keeping,
German,	Physical Science,
Mathematics,	Mineralogy,
Mechanics and Geometry,	Rudiments of Botany and
Chemistry,	Zoology,
Technology,	&c., &c., &c.

Classics are only taught in the *gymnasia*,* where the students are prepared for the university course.

Returning to the subject of compulsion at home, I see one great obstacle to carrying out the principle generally in this country. It would be difficult to recover a fine from a poor man, or to inflict some other punishment; nor would compulsion raise education in the eyes of the lower classes. During the past year not less than 758 fathers in Berlin were sentenced to imprisonment for not obeying the school laws in this respect, and 2,034 were fined. If such be the case in Berlin, where it is a religious duty to send children to school, and where it has been so long in vogue, we should surely have to commit ten times that number to prison — (the population of Berlin and Liverpool differs but little). Are we prepared to deprive 7,000 fathers of families of their liberty, and fine 20,000 more, or even half that number? Would such proceeding be tolerated? nay, would Parliament even pass such compulsory laws? Not many years ago, a commission was appointed, whose report, by a large majority, was against compulsory education, as unsuitable to this country. The system in force in Prussia, they said, was adapted to a different state of society from ours, where

* The *Gymnasia* on the Continent are similar to the English Grammar Schools.

the central administration wielded greater power over the people, and where they were habituated to a more searching police. Mr. Sam. Laing, in his *Notes of a Traveller*, strongly deprecated the introduction of this system here. Many other eminent statesmen and scholars equally did so then, and do so now; nor have Frankfort, Hamburg and Geneva adopted the compulsory system, though no towns stand higher in the number of their schools and quality of instruction than these three. Mr. Matthew Arnold, in his book on *Popular Education in Switzerland*, states, that while in Geneva he was informed that the compulsion enforced in the neighbouring Cantons was quite illusory. In the Canton de Vallois the child needs to attend only during five months in the year; in the Canton de Fribourg, the law, though it embraces all between the ages of seven and sixteen, authorises the exemption of those children whose labour cannot be dispensed with by the parents; and similar relaxation is conceded in the Canton de Vaud. Mr. Arnold learnt that the Council of Public Instruction found the greatest difficulty in reconciling the requirements of the law with the consideration due to poor parents. While there had of late years been a steady increase in the population, the number of children attending school had diminished yearly, so that while in 1846 the attendance of 34,781 was registered, in 1852 the number had sunk to 32,853, and in 1858 to 30,438. Though the system of instruction was good, and the examination of teachers and inspection of schools carefully attended to, the results were unsatisfactory. And it was evident that, while in France, without compulsion, primary education was progressing, in Switzerland, with such aid, it was retrograding.

Nor are compulsion and good tuition the only means by which the attendance of children at school may be secured. I will suggest some:—

I. That no one be allowed to engage a servant, male or female, in town or country, in a factory or for domestic or agricultural purposes, without either a certificate that he or she has been for a certain period at school, or proof of ability to read and write; the forging of such certificate not only to be followed by instant dismissal, but also be liable to legal punishment.

II. That in voting for a member of Parliament, for a municipal councillor, commissioner of the local boards of health, vestry-man, churchwarden, all shall be done by bulletin—the voter writing the name of the candidate, signing his own, and delivering it himself. Forgery to be followed by disfranchisement independently of its being an offence punishable by law.

III. That parties applying to be married, either at the registrar's office or by any minister of religion, shall sign, *previous* to the ceremony, a request that they desire thus to be united, instead of signing the register afterwards; or, if necessary, both *before* and *after*.

IV. There is still another method to increase the attendance at school; *i. e.*, to levy school fees from all parents who are able to pay for their children between six and twelve years of age. This system has been adopted in three northern provinces of the Netherlands, Groningen, Overijssel and Drenthe, with the best result. Although these provinces have adopted this rule, the parliament has refused to pass such a law nationally.

I am aware that the three first restrictions (even if passed into laws) could not at once be acted upon, but some years must elapse in order that all might meanwhile receive sufficient instruction. These laws, however, becoming known, would induce not only parents to send their children to school, but even men and women of maturer age to devote themselves to attain the required knowledge, to meet the otherwise

important restrictions affecting their future privileges and welfare. Furthermore, all schoolmasters and schoolmistresses should be properly educated, and pass an examination, (in preference, by one of the Universities, or by a board of education, consisting of the school inspectors, as in Holland;) and without this examination none should be allowed to teach. The normal schools, for pupils who have shown adaptation in the common schools for this profession, would be, and are, I believe, already, an established mode to obtain an adequate number of candidates. The first requisite for improvement in any educational *system* is undoubtedly a superior class of teachers. These, however, ought also to be better remunerated than they have been hitherto, and to have a chance of promotion, with increased honours and emoluments.

In Holland, schoolmasters receive pensions after forty years' service, and also when sixty-five years of age; and are otherwise rewarded for good service.

Our government system of contributing, according to results ascertained by examination, appears to have thus far answered well; this principle should be applied to all schools whether denominational, national or secular; a sufficient number of secular schools to be provided by the municipal or other authorities, and the cost beyond what is received thus and from school fees, to be defrayed by government; but I doubt whether in large towns voluntary efforts would not provide the secular schools required. It is only in rural districts, thinly populated, that the authorities, local or general, would have to take the initiative.

The system (introduced already here and there) of alternate school-days deserves, for more than one reason, serious consideration:—

1. It would enable the children of the poor, who can be of service to their parents, to be so half the week.

2. It is now well understood that much benefit is derived from a change of occupation, both mentally and physically; I believe that thus a youth will probably learn as much in three alternate days as in six consecutive ones; and the three days of intellectual labour may also be more valuable in any industrial pursuit than that of an ignorant lout.

3. And lastly, half the expenses would be saved, as two hundred children would be instructed in a school capable of holding only a hundred, and thus masters, required to teach a hundred, would suffice for double that number.

In France, it is found that a greater proportion of the children attend school in the rural than in the urban districts; and although by a factory law, a certain number of hours should be devoted to instruction, this rule is extensively evaded. The general obedience to the law in Holland is possibly due to the fact that that country has few manufactures. Now the alternate day system compromises with the eagerness of parents to profit in manufacturing districts by their children's labour; while it is specially applicable to rural districts, where children are a considerable distance from school.

I have recently seen the proposition of Archdeacon Dennison, that the denominational schools should remain as they are now, without any change, but that secular schools be established in every town or district, and receive the same assistance, tested by results, as the denominational; while on the other hand, the Manchester Education Reform Association indicate the conscience-clause as the best and only remedy to attain the desired result of drawing children of every sect to school.

I say, adopt both schemes; act on the wider basis; let the conscience clause be introduced in all denominational schools, and establish also secular schools. It is my conviction, that then we should soon realise what is

so ardently desired and indispensable, viz., *the education of the masses*.

But before I leave elementary instruction of the working classes, I must say a few words on the subjects to be taught.—Now, the notion that a little reading, writing and calculation, with the Bible is sufficient for the artisan, has, in a great measure, disappeared. It is a fallacy to be buried with many others of our former principles and ideas. The artisans of other countries receive superior instruction, and consequently will surpass ours in taste and ability as workmen; and as we also pay much higher wages, we shall eventually be left behind in the race, unless we educate our men,—aye, and women also to an equal standard. Already symptoms of our inability to compete are here and there painfully apparent.

The importance of this point is illustrated and confirmed by Messrs. Minton & Co., and others, who say that since schools of design were established, they, as well as their workmen, have availed themselves and greatly benefited by the advantages thus placed within their reach.

We have elevated our men also politically. Hence for one reason or other the instruction of the lower classes must be enlarged, and include the elements of geography, national history, physical and social science, plain ideas of political economy, drawing, all in a simple manner, easily to be understood; so that with further education received afterwards from the admirable free-press of this country, they may be able to understand their own interest and that of their native country, and not be led astray, through ignorance, by the various snares laid on their path, as the evil of strikes, the excesses of trades-unions, &c.

A Belgian speaker, at the Social Science Congress

Meeting in Ghent, recommended the writing and publication of a popular encyclopædia; or a national dictionary for the lower classes and artisans, *to contain all the practical knowledge a workman ought to possess, and worthy of the liberty he enjoys*; in fact, a code of the civilised citizen. Such a book, sanctioned by public spirit or the popular voice, would serve not only at the schools, but at the family fireside, and should rank next to the Bible and catechism. He suggested that government should offer a prize for such a complete work; and he believed that no amount they might pay, would be too dear.

It also appears very desirable that in such a country as this, possessed of numerous colonies, and yearly sending forth large numbers of its children to settle there, a thorough knowledge of the climate, resources, &c., of our various dependencies should be inculcated at all our schools; but especially at those where the classes from which our emigrants are chiefly drawn receive instruction.

It might also be wise, in our reformatories and our pauper and ragged schools, to encourage the youths to select for their future career, say the army, the navy, or emigration, and thereupon to impart such information as should make the subsequent life thus selected one of success and rectitude.

I have so long detained you with the instruction of the lower classes, that I must hurry on and even curtail my observations about those higher in the scale of society. This is, however, less material; as these, when once thoroughly informed of their present defects, are in a better position to apply a remedy.

Not only is the education of the so-called higher and middle-strata of society insufficient, but the very progress contemplated in this respect for the lower classes will make

a concurrent advance doubly essential to those above them. I alluded to the rudiments of political economy, physical science, &c., as being required to be taught in our common schools. These are to a greater extent necessary in the middle higher schools; and natural philosophy, modern languages, general history, and mathematics should also be added, as most desirable for those who are about to devote themselves to commerce and industrial pursuits. In fact the Dutch programme may serve as a model. The predominance of classics in the commercial daily or boarding-school, has often been discussed in this and other learned societies, and by public speakers. Many of the rectors of our and the Scottish universities have alluded to it in their inaugural addresses. Now although many of these *savants* may under all circumstances be in its favour, I venture to differ from them, on the ground that for those youths who have to end their school-days at the age of fifteen, in order to apply themselves to their future callings, there is not sufficient time to learn all that is essentially necessary, if much time is taken up with the classics. The great commercial intercourse between the various European nations, the ever increasing ease and rapidity of communication, the importance of continental literature, all combine to reverse the conditions of social victory in the days of our grandfathers, when the continent was closed to Englishmen, and a knowledge of French was almost equal to a proof of disloyalty. A knowledge of modern languages is now essential to a business man or to a gentleman, and overrides the claims of Latin and Greek. Let it be well understood, those who can remain at school till eighteen or twenty should by all means first receive instruction in the *dead* languages, to be followed by the *modern* ones. What has been the case in the past? Three-fourths of the week have been consumed in the study of Latin, or Latin and Greek, much to the neglect

of other and indispensable branches of tuition. But then two arguments are generally produced in their favour, viz., that the modern or living languages are more easily attained through the knowledge of the ancient or dead ones, and that Latin is the root of all grammar. And furthermore, it is affirmed that the study of the classics is an excellent mental training.

I would reply to these two arguments, that not one out of twenty young men or women, who have spent a considerable part of their school-time in the study of Latin and Greek, knows much of these languages when leaving school, or has had time to acquire French or German or any other foreign tongue. Even the examinations for the diplomatic and civil services have often proved the candidates very ignorant of English itself; and as to the effect of mental training, it is thought by many that mathematics, geometry and algebra are more calculated to strengthen the intellectual faculties, to produce correct and logical reasoning, and more likely to benefit the future merchant, manufacturer, engineer, ship-builder, architect, and members of similar professions or industrial undertakings, than the classics. In no country in Europe is so much Latin and Greek taught in the middle class schools as in England, although in many countries foreign languages are far better understood than in our own.

As an instrument of mental discipline, physical science appears very desirable and important; while natural and experimental philosophy are valuable both as a study and a recreation.

Our former president, Dr. Ihne, says:—

The organisation of the *real-schule* for middle classes in Germany, is analogous to that of the gymnasia; they have annual courses, and a gradually ascending scale of tasks; in short they only differ from their elder sisters, the

Gymnasia in this, that they substitute modern languages for the ancient, and extend the course of natural sciences. This, as you have heard, is also the case in Holland.

I had written thus far, when the letter on technical education by Mr. Samuelson, M. P. for Banbury, was sent me by that gentleman. It is the result of a continental tour of inspection or investigation of schools and factories, and has been addressed to Lord Montague, Vice President of the Board of Education.

This document affords much information in a small compass. The descriptions of the peculiar schools and colleges in France, Germany and Switzerland cannot fail to interest us deeply at this moment, and to supply us with the fundamental principles on which a liberal education should be based, as applicable to the future industrial and scientific pursuits of the scholar.

Mr. Samuelson remarks, that in the establishment of central schools or colleges in France, special attention is paid to the town or district in which the institution is placed. In Mulhouse and Rouen, (the Manchesters of France,) and in Lyons and St. Etienne, (the Spitalfields of France,) not only art is taught, but also chemistry, applicable to dyeing and printing. In colleges situated in the centre of rural populations, a course of chemistry for agricultural purposes specially is pursued, such as analysis of soils and manures, whilst instruction in navigation is given in the schools of large seaports; and metallurgy in those of mining districts.

This system of instruction is in some measure even followed with the humble elementary scholar, although in a minor degree; and as the French soldier is said to have a marshal's baton in his knapsack, so has every French scholar, however humble, a valuable prize in his satchel. A greater number and variety of *bourses* and scholarships are given in France, and elsewhere on the continent, than has been the

case in this country hitherto; they include residence and instruction at the Lycée, school of art, or Ecole Polytechnique.

Such of you as may have been in Rome will remember one of the most prominent palaces or buildings, the Villa de Medici, situated near the promenade or drive, as being the French academy of fine arts, entirely maintained at the expense of the French government, and under the supervision of their ambassador, where deserving art students are gratuitously educated. Our own wealthy corporation could not expend a few thousand pounds annually more usefully than in stimulating rising talent, by offering to the youth of this town scholarships to higher schools or scientific institutions.

I may just supplement Mr. Samuelson's able review, by calling your attention to our inferiority in certain departments of industrial art, and our inability to compete with our continental rivals, either in workmanship or in prices. The painting or staining of glass in Belgium or Germany is not only infinitely superior to our own, but also much cheaper. A splendid memorial window in Crosby church, recently supplied by a celebrated firm in Brussels, well deserves a visit from those who are lovers of that ancient art. Carving in marble or ornamental sculpture is carried on to such an extent in Belgium, that this country is for the greater part supplied with sculpture and artistic chimney-pieces from thence, although the statuary marble for this purpose is mostly imported into Belgium from Italy. It has also often grieved me to see that England does not participate in the large and lucrative trade of bronzes, so prosperous in France and Germany. With the exception of Elkington & Co., who now and then display a group, no attempt is even made to introduce this charming art-industry to us.

The urgent necessity of increased and improved education for every class of society, profession, and occupation, was

admitted at Belfast without a dissentient voice, and I am sure will be equally so by the Liverpool Literary and Philosophical Society.

The Chambers of Commerce abroad take a lively interest and active steps to promote technical education. I have observed that the Associated Chambers in Birmingham have given it their attention ; and I trust the zealous members of the Liverpool Chamber will not fail to take this important matter into their consideration.

I have, Mr. President, ladies, and gentlemen, occupied your attention already too long, so will conclude with a few observations on FEMALE EDUCATION.

Let me remark that here again the Social Science Association is doing good service by keeping alive an important subject. I have in vain sought amidst the mass of speeches in parliament, and from members in their orations to their constituents, for a slight recognition of the necessity for enlarged and improved female education.

Provision is made to educate men ; the State interferes substantially in both elementary and higher instruction. Before the Reformation, endowments existed in behalf of female education ; but as they were closely interwoven with religious houses, they were after that event transferred for the benefit of men, and the education of women remained unheeded by the State. The idea formerly prevailed, that women should not be educated to an equal standard with men. But I imagine that it is as essential that the judgment of the other sex be formed, the character disciplined, and the understanding cultivated, as in men. The mind has properly *no sex*.

I have not found, nor do I believe, that women who are distinguished by great talent and high mental culture have failed in the performance of the duties of their sex ; nay,

the more woman is instructed the better will she be able to answer to the high destiny which a wise Providence has imposed on her. Women may safely say, "The future belongs to us." *They* lay the first foundation as mothers, for the weal or woe of those men and women who will become the good or bad citizens of the next and future generations.

Besides, statistics furnish us with the fact, that more than one million of women in this country must remain unmarried; and they should be specially considered, and provided with such instruction, that in their solitary pilgrimage they may steer through life unscathed by the many difficulties and dangers which surround them.

The quality and measure of education required for the various social divisions next claim our attention. As I said before, I hold that the education of each class of women ought to be fully equal to that of men of similar position; to which should be added such peculiar instruction as may be useful and necessary to the future wife and mother.

Such is hygiene, or the outlines of sanitary knowledge, which is much required among the poor especially; and the want of which is one of the causes why the death-rate among children of the lower classes is so fearfully high.

Another reason why the education of women should be much more extended than it has been hitherto, is the necessity that a greater variety of employments be thrown open to them to provide for themselves if unmarried, or if called upon under special circumstances to assist and earn a livelihood for their families. There are many such employments not yet developed in this and other countries. In Chaux-de-fonds and Locle, in Switzerland, prosperity is found everywhere in a high degree; but there all women, married and unmarried, are employed in making watches and musical boxes; while in the

same country, there are thousands and tens of thousands, through whom the great and profitable branch of industry of worked muslins, ladies' handkerchiefs, and other embroidery is carried on. In Belgium, there are, again, many thousands employed in binding books and other stationery work. (A printing-press—the "Victoria"—worked chiefly, if not entirely by females, has for some years past been in operation in London.) Porcelain painting and other art-branches occupy a great number in France and Germany. There are numerous other industrial occupations which the capacity, intelligence, and good taste of women are well calculated to enter upon. The industrial society of Mulhouse has resolved to open to women new sources of labour.

It is perhaps not generally known, that in Paris, and other parts of France, the wives and often the daughters of the higher classes take an active and leading part in conducting the business in large commercial establishments, and, I can say from personal experience, with great credit and advantage to themselves. Their acuteness is proverbial, their judgment calm, and generally just. In application and perseverance, they even surpass their stronger helpmates. The origin of this custom is to be found during the reign of Napoleon I., when nearly all men between eighteen and fifty had to fight the numerous battles of the Empire; and women were thus compelled to assist in the field, the factory, and the counting-house.

I was much pleased to see many intellectual-looking young women, clean and neatly dressed, occupied in the wholesale Belfast warehouses of Messrs. Duncan Dunbar & Co., and other firms.

Next, as to superior female education, I find that opinions generally tend to prefer the influence of home-life, with a college or school discipline, for the girls of the middle and higher classes. At the Social Science meetings in Belgium and

Holland, this system was ably advocated, and among others by ladies of high position and great intelligence; and continental nations are acting on that principle. Institutions and colleges, with eminent professors, are gradually taking the place of boarding-schools; in which latter it is considered showy accomplishments are mainly taught, in preference to the more solid part of instruction, which ought to include the higher branches of science and literature.

In Geneva, Stuttgard, and other towns, colleges of this description exist. To the Sorbonne in Paris there has lately been added a high school or university for women, and young ladies of the first families avail themselves of this instruction. We have in our country even greater reasons for substituting such colleges for boarding-schools, as the ladies who conduct these latter establishments often do so from necessity, being widows, wives, or daughters, in order to provide for themselves or families, without possessing adequate talent to fulfil such important functions. However much benevolence and charity may approve of and wish success to such efforts, the education of the daughters of England is of greater importance *even* than the support of a certain number of ladies or families. In America also there are numerous institutions and colleges for teaching the higher branches of knowledge to woman, and these are prosperous.

If ladies are to remain instructors of their sex, they should be educated for that purpose, and give proof that they possess the necessary ability. Institutions to prepare female teachers and governesses exist here and there already on the continent; London and Cambridge universities do now examine and grant degrees to women; but universities or high-schools, where teaching and examination are combined, would be preferable. There is one difficulty in carrying out the system of town colleges for ladies, which I must fairly state, viz., that wealthier families in this country

reside, not in the town, but in the suburbs; thus the inconvenience and other objections to go and return daily to the neighbouring town or city are an obstacle.

There are other reasons for giving the preference to colleges over boarding-schools. Whilst the discipline of public schools does not permit of any parental interference, the heads of boarding-schools are constantly interfered with by parents in the management of their pupils.

Two colleges for young ladies, where university professors give instruction, do now exist in London, the Bedford, which I understand, is on the secular principle, and the Queen's, in connexion with the church of England; and I have heard them highly eulogised for the course of instruction imparted there, and for the ability of their professors.

I hope the subject of female education, both lower and higher, will receive that further attention which its importance so well deserves.

I would gladly have touched on some other interesting subjects in connexion with Social Science, but we constantly find ourselves unable to accomplish what we aim at or desire, and we are therefore compelled to place a limit to our labours. Let us, however, while we have life and health, use our faculties to promote the good, the true, and the beautiful; let us not accept the motto, "Rest and be thankful;" let our watchword rather be, "Onward, onward." May we endeavour by our exertions to ennoble humanity, and thus to glorify the God of humanity. There remains much work to be done for our country's good; scarcely is one effort accomplished, one difficulty removed, one victory gained, before numerous new questions press for solution.

Electricity appears to preside over all our movements; incessant activity is thus required. In England, every freeman, member of the body-politic, should enter the arena

of strife as if the welfare and progress of his country depended on his individual exertions.

Do not believe that our decadence has commenced ; but be assured, if we run the race vigorously, the prize will still be ours ; and this gem of the ocean, this empire on which the sun never sets, will continue to be a guiding star to other nations in the path of political liberty, of intellectual progress, and of religious freedom.

Since this paper was delivered, the Author has visited Holland, where he inspected some of the primary, middle and higher schools. What he there saw impressed him still more favourably with the extent and quality of the instruction imparted.

The Utrecht Higher School appeared especially worthy of praise.

Though the class of schools which this represents were directed to be established but a few years since (in 1863), already thirty-two are in full operation, and seven others are being erected. It is intended to form one in every town with 10,000 inhabitants or more, and in every district where, though no single town has that population, the various villages united have. Thirty-six towns in Holland come up to the requisite standard. The country districts may be represented by Sappemeer, Hoogezand, and Martenshoek (in the province of Groningen), where 15,000 persons are congregated around the institution, or by Zaandam and Zaandyk.*

At Utrecht, a city containing 56,000 inhabitants, with an university, the high-school has been in operation only two years ; yet it is regarded with much public favour, and its class-rooms are filled with intelligent and earnest pupils. The writer cannot sufficiently express the feelings which animated him as he examined this building, the extent and loftiness of its class and lecture-rooms, its well-furnished laboratory, and the ample collection of engravings and models in the apartments where engineering and mechanics are taught. Nor was he less gratified by the influence exerted and the popularity of the fourteen heads of departments, who, under the direction of the President, impart the varied knowledge which is there supplied. Each head of a department (*docent*) receives 2,500 florins (about £210 sterling) annually. This, however, is not the whole of their income, for, the school hours being

* Of the thirty-two, twelve are supported by Government, the remainder by the municipalities aided by Government subsidies. Utrecht alone last year cost the Government no less than 30,000 florins, or £2,500 sterling.

very short, most of them increase it by giving extra lessons, either to their own scholars or to the students at the university. It is also usual for them to take boarders.

The course at the high schools extends over three years in some, and five years in others. In the smaller towns instruction is completed in three years. At Utrecht, students may remain either three or five.

Each pupil pays from £3 10s. to £5 per annum in the larger towns. In the smaller ones, however, the school fee commences as low as £2.

Classics are not taught, but English, French and German take prominent positions, a knowledge of the literature as well as of the language being carefully imparted. In fact, these institutions may be placed in the same rank with the *Real- and Gewerbe-Schulen* in Germany, and also with those institutions in France which have been described as adapting their course of tuition to the localities in which they are placed, sciences bearing on commerce and manufactures being specially taught in large towns, and in agricultural districts such other knowledge as is peculiarly useful there.

As the increase of population is constantly bringing other towns up to the standard at which a high-school must be built, the number will steadily rise year by year.

At the close of 1867, there were in these thirty-two schools three hundred and fifty-one heads of departments (head masters), of whom two hundred and seventy-three had before their appointment shown great ability and aptitude at the gymnasia, military academies, and other superior educational establishments, whence they came. Of the remainder, who were teachers of knowledge not included in the curriculum at those places, such as Political Economy, the talents and learning were undoubted, as will be seen from the fact that of the twenty-three who taught that science, twenty-two held the degree of Doctor of Jurisprudence.

As there are no high-schools in places where the population is below ten thousand, the middle schools there have an extra class for the impartation of knowledge more advanced than that usually furnished.

For instruction in the classics, there were sixty colleges and schools (known on the continent as "gymnasia"), the greater number of which receive subsidies from Government.

This paper gave rise to a lengthened discussion, which it was unanimously resolved to continue at the next meeting.

EIGHTH ORDINARY MEETING.

ROYAL INSTITUTION, 10th February, 1868.

J. BIRKBECK NEVINS, M.D., VICE-PRESIDENT,
in the Chair.

Ladies were invited to attend this meeting.

The Rev. J. Holding, M.A., F.R.G.S., was unanimously elected a Corresponding Member.

Mr. Moore exhibited a selection of specimens from a collection made on a recent voyage to the China seas, by Captain Fred. E. Baker, ship *Nippon*, an associate of the society, and the whole of which had been presented by him to the Free Public Museum.

Among the objects exhibited were some fine Siluroid fish (generally known as cat fish), some bright-coloured fish, less than two inches in length, and commonly known as "fighting fish," from their extreme pugnacity, fighting at each other, or endeavouring to do so, even when placed in separate but contiguous glasses of water; also a giant species of prawn, measuring some two feet in total length, and having the pair of limbs bearing the pincers coloured blue. These, with many other specimens contained in the collection, were from Saigon River.

Among the objects caught at sea were specimens of minute Crustaceans, which were met with in such prodigious numbers, in lat. 38 37 S., lon. 32 E., as to give the surface of the sea a blood-red colour in every direction; also some crabs found with the *janthinx* or violet shells, which, like the *janthinx*, are invariably of a blue colour;

crabs found on floating timber, also approximating in colour to the material on which they are met with. Some Sallee men (*Velella*) of extraordinary size, and numerous other specimens, were also shown.

Mrs. Baker, who accompanied her husband, had shared with him the pleasant labour of making the collection, which was duly accompanied by notes of lat. and lon., and observations of interest on the specimens caught. Mr. Moore remarked further, that the pleasure derived from such pursuits during the tedium of a long voyage extends to the crew, who, although at first they may be inclined to vote a towing net or dredge to be a trouble or a nuisance, soon learn to take an intelligent interest in the interesting objects obtained therewith.

The CHAIRMAN then alluded to the death of Mr. Rathbone, and called upon

The Rev. H. H. HIGGINS, who said that he was glad to show, on behalf of the Society, any tribute of respect to the late Mr. Rathbone. His name and life had been so prominently brought before the public in the local press, that he would on this occasion refer only to his connection with this Society and the Royal Institution.

Mr. Rathbone was one of the original founders of the Literary and Philosophical Society; and now that he was gone, there was only one left — Mr. Holbrook Smith. Mr. Rathbone had often spoken to him (Mr. Higgins) of the delightful associations of those early times, when the members of the Society frequently met in each other's houses, and, after spending the evening in literary and scientific discourse, concluded with oysters and porter. He had lately seen a list of the projectors of this institution in which they were now assembled; it was dated 1814, and contained thirty-six names. Mr. Rathbone had been the only survivor left of this list, which had a closer connection

with the Literary and Philosophical Society than with any other societies in the town.

Mr. Rathbone had remained an active member of the Royal Institution for a long time ; and after some retirement, he renewed this active interest in its affairs about ten years ago, when he became a member of the committee and continued in office to the day of his death. Mr. Higgins then referred to the funeral, at which he was present, and said that he had never seen in Liverpool such a number of influential men, and of such high standing, gathered together. He concluded by moving the following resolution, which was seconded by Mr. Richard Johnson, and unanimously carried :—

“That the Literary and Philosophical Society desire to record the deep concern with which they regard the loss from amongst them of Mr. William Rathbone, a true friend to intellectual improvement, and one of the original founders of the Society ; and to express their heartfelt sympathy with his family on the mournful occasion.”

The adjourned discussion on Mr. Baruchson's paper was then resumed by Mr. Picton, Mr. Baruchson having first read some observations in reply to the remarks made at the last meeting. The points chiefly under debate were compulsory education ; the value of the classics *versus* modern languages in education ; and the patronage accorded to literature, science, and art in Liverpool.

NINTH ORDINARY MEETING.

ROYAL INSTITUTION, 24th FEBRUARY, 1868.

The REV. H. H. HIGGINS, M.A., VICE-PRESIDENT,
in the Chair.

Messrs. Lewis Hughes, Charles W. Jones, John Marsh, and John Elliott, were unanimously elected Ordinary Members.

An unusual number of members and friends, including ladies, were present at this meeting, as it had been announced that Dr. Collingwood, late Honorary Secretary of this Society, would give an account of his recent scientific voyage to the China Seas. The address, which was delivered *extempore*, described more particularly "*The Physical and Ethnological Features of the Island of Formosa*," and was illustrated by a variety of maps and sections, and an extensive series of landscape drawings by the author, illustrative as well of the geological features as of the picturesque beauties in the scenery of Formosa.

Dr. Collingwood has since published a full account of his voyage, under the title of "*Rambles of a Naturalist on the Shores and Waters of the China Sea*." The work was exhibited to the Society by Mr. F. Archer, at the Eleventh Ordinary Meeting.

TENTH ORDINARY MEETING.

ROYAL INSTITUTION, 9th MARCH, 1868.

J. A. PICTON, Esq., F.S.A., VICE-PRESIDENT,
in the Chair.

Ladies were again invited to attend this meeting.

Captain Sir James Anderson, Associate of the Society, was unanimously elected an Honorary Member, and Mr. James Holme, Jun., an Ordinary Member.

A paper was read "On the Rationality of the Lower Animals," by Mr. W. Bromham.

ELEVENTH ORDINARY MEETING.

ROYAL INSTITUTION, 23rd MARCH, 1868.

J. A. PICTON, Esq., F.S.A., VICE-PRESIDENT,
in the Chair.

Mr. Wm. Dixon was unanimously elected an Ordinary Member, and Captain David Scott, an Associate of the Society.

Mr. T. J. MOORE brought before the Society the following objects:—A vertebra and samples of Baleen of the Stape-rayder, or Rorqual, forming part of a donation to the Free Museum lately made by Mr. H. Bird, and introduced to the meeting that gentleman and Captain Bottemanne, of Leyden, both of whom communicated various observations made on this species on the coast of Iceland, where these whales are

abundant, and where one was measured 105 feet in length. Also a collection of butterflies from the Cameroons, presented to the Free Museum by the Rev. Quintin W. Thomson, who collected them during several years' residence as a missionary in that region of West Africa. Also the head of a large fish, apparently belonging to the Maigres (family *Sciaenidae*), taken off the Cape of Good Hope by Captain Fletcher, ship Sumatra, by whom it had been presented. Also the under jaw of a fish from the River Plate, presented to the Museum by Captain Batty, per Mr. R. J. Keen. The two sides of this jaw are united at the chin by a hinge joint, of very remarkable and beautiful construction. It belongs to a fish called the Dorál at the River Plate, and on being compared with a jaw of the *Sudis gigas* of the Amazon river seemed to be identical with that species, which attains to a large size, being one of the largest fresh-water species in existence. Also a very fine lacquered bowl from Japan, beautifully ornamented with figures of fishes in gold relief on a vermilion ground, the figures being drawn with great skill and truthfulness to nature. The bowl had been kindly lent for exhibition by Mr. Cross, of Park-lane.

The following Paper was then read :—

ON CERTAIN THEOSOPHIC IDEAS OF THE EAST.

BY THE REV. W. KENNEDY MOORE.

IN every development of humanity, we must take into account the two related elements of the inward and the outward, what man brings in him and what he finds without him. In an individual life, we have a series of activities which are the resultant of these two things, the original germ of character and the circumstances through which it has been developed. When Themistocles was told by a Seriphian that he was only a great man because of the city he belonged to, he retorted, both wittily and truly, that his reproacher would not have been a great man though he had been born at Athens, nor would he himself have been great had it been his misfortune to be born at Seriphos. Two men differing originally would not live the same life because placed in the same circumstances, nor would the life of a certain man be the same had his circumstances been different.

Our character is not a simple effluence, like the springing of a fountain, much less a simple moulding, like the casting of a bronze statue. It is a development from within, modified by the pressure of external forces. The series of past deeds, constituting our historic life, marks the steps by which we have come from the original germ to the present phase of our being. Those deeds themselves have a power in determining to some extent those that follow. Our acts form an incrustation, so to speak, which confines an absolute freedom, just as each successive incre-

ment to the shell of a mollusc fixes more rigidly the direction of its growth.

These thoughts apply equally to races as to individuals. Humanity at large is a unit, the development of which forms all past history, written or unrecorded ; and the present character of which as a whole has been determined by that past history. That history shows how the nature we have has been drawn out and acted on by the whole system of forces, natural or supernatural, to which it has been subjected. What humanity is capable of in the developments of the future, whether as a race on earth, or in the individual being in some other world, it is utterly impossible for us to say, for we only know ourselves in so far as we have already developed. What powers yet unfolded may lie hid in the depths of our nature, we know no more than a caterpillar, feeding on a rotting leaf, contemplates the future glory of its purple wings, or than a drop of water is conscious of the tremendous electric forces that slumber within it.

A particular tribe of men give us a form of humanity more specialised than the race at large, but of course much less specialised than the individual man ; and with the needful modifications, all that we have said applies also here. The Anglo-Saxons would not have developed into Englishmen had they settled in Italy ; nor would the inhabitants of this island have been what they are, had they derived their origin from a Finnish Stock.

A particular application of the general truth set forth above, may be made in reference to intellectual products. In a work of genius, we note the shaping mind and the materials it found whereon to work. No other man but Shakespere had the peculiar power which enabled him to write King Henry IV. But he would never have written it had not English history furnished Bolingbroke, Hotspur and Prince Harry, and had not English social life given him the

elements of Falstaff and Dame Quickly. In a work of genius, it is as impossible to separate the subjective from the objective, as to separate soul and body in the living man. The whole intellectual life of humanity is the effort to see what actually is, and to set it forth when we have seen it. Works of fact, of philosophy, or of imagination, have no value except as they set forth truth. Poetry aims at speaking truth quite as much as history, only it is a different truth, a truth of finer sort. A statue or painting must express artistic truth. To devise an image, or recount a tale, signifying nothing, is to be an idiot or a fool. Although the true, the beautiful, and the good are properly enough made the terms of a threefold division, yet from another point of view they may all be included under the true. Humanity finds itself in a universe, and to find out the facts of that universe is the great task for the mind of humanity.

By far the most important part of this enquiry is the religious part. Physical science in its widest sense, including the investigation of mechanical, chemical and vital forces and beings, forms one great division of intellectual labour. Then we have the human sciences, such as law, politics, sociology, &c. The remaining division has to do with man's relation to the Infinite; and this we may in general speak of as religion.

There is an intellectual side of religion, and a practical side. Intellectually, it is the effort to see the actual state of facts regarding the Infinite and the relation in which we stand towards the Infinite; practically, it lays down rules for our guidance in life, based upon those facts with which we have become acquainted. In tracing the progress of our knowledge from its earliest germs, we may affirm that the foundation of all our knowledge is intuitional or instinctive. We thus know that we exist, and that external things exist, such as the ground we tread on, and the sun that warms us.

We do not need to be taught how to use our limbs or our eyes, that we should eat food and drink water, or that we should love our kindred, &c. All these things we know before we come to think of knowledge. As we proceed, our observations are easy and sure in those things that lie nearest us, but discovery becomes more difficult as we prosecute our researches into regions more remote, till at the present stage of scientific enquiry it requires great culture, care, and mental power to make any new discovery at all. A great deal of scientific progress depends on the formation of proper theories to explain facts, as the expression commonly runs. What is really meant is the discovery of the actual state of facts, from the appearances or observed phenomena. Thus the Newtonian theory of the heavens is the actual state of facts regarding the celestial bodies; while previous astronomical theories were right concerning the principal phenomena, but wrong in their conception of the actual state of facts by which these phenomena were produced.

To apply these thoughts to the subject of religion, we first assume, what no true philosopher or sane man will deny, that there is an actual state of facts regarding the Infinite, and the relation of man to the Infinite. Then we have to consider how far men have become acquainted with those actualities. What are the efforts they have made to see those highest truths, and to what extent have those efforts been successful, as far as we can judge?

Let us first consider what the Christian theory is in this matter. That theory may be thus concisely stated. The Infinite is a distinct personality, with individual will and morally perfect attributes, the author of all Finite being. More specially he has had a historic dealing with the human race, going on from the dawn of our being, through a series of events which culminated in the life and death of Christ, but which in some sense still continues. In this

series of events we have the fullest representation of his character, and the solution of the problem of the place and destiny of the human race. In this supernatural series of events, is included the giving of the writings in which the record and explanation of these events are contained; and no explanation on any of these points is to be admitted which is inconsistent with those records, or with the events of which they treat. An enormous amount of intellectual force has been expended in Christian countries in the elucidation of these records, and a full explanation of the principles that rule in the recorded events; and this whole field of thoughtful toil is generally described under the title of Theology. Other dealing with some of the questions that concern our relation to the Infinite, not taking historic records into account, we call more strictly Philosophy. We may venture to believe that in the future Philosophy and Theology will be brought into fuller harmony and closer alliance than they have been in the past.

Other systems of religion besides the Christian have claimed divine inspiration for their sacred books, as the Mahomedan faith for the Koran, and Hinduism for its Vedas, Puranas and Shasters. It is not our business at present to enter into any consideration of these contending claims to inspiration. We may notice that all religions, with very few exceptions, believe in some form of supernatural revelation; and where this is not looked on as contained in an inspired volume, it is held to come through a special class of men who are visited with a divine afflatus, and thus become channels of communication from the Deity. For our present purpose we shall only assume that in all religions there is a germ, however small, of truth. This at least there must be, that there is something divine, which men are bound to know and worship. It matters not to our argument whether such elements of primitive truth be supposed to be drawn

from intuition, from tradition, or from both sources. The various creeds which have grown out of this germinal idea, may for our purpose be looked on from the human side, as theories by which men have endeavoured to comprehend more fully the whole of the great facts with which religion has to do. In Oriental countries, and particularly in India, where the genius of the people is subtle, meditative, and high-soaring, these religious theories have been numerous and philosophic ; and it is to these speculations that we give the name of Theosophy. It is in great part what we should call philosophy, but mixed up with religious formulas and claiming sacred authority. We cannot go over the whole field, nor even indicate its extent, but wish to call attention to two or three peculiar ideas which are therein found.

We may remark that the first form of any faith is simple and concrete. Personal spirits are believed in, who are looked on as the direct givers of the blessings of life, or the authors of the common evils from which men suffer. It has been said that man himself is a god to his dog. That faithful creature recognises in his master a superior being, who gives him all he enjoys, who has the power to punish him, whom he is bound to obey implicitly, and for whom he feels a strong attachment. It might almost seem as if some ruder tribes have scarcely any greater religious ideas than these. They believe in an unseen spirit who inhabits as his body, or rather his house, a certain idol, who makes their cocoa nuts to grow, or destroys their fishing-boats with a storm. It seems hardly possible, however, not to believe that, even in these dark dull minds, there is still some obscure conception of an Infinite Being and a future life. These ideas seem natural to the mind, and involved, however dimly, in all religion. In regard to Hinduism, the earliest sacred books, the Vedas, signalise the time of a comparatively simple and more concrete faith, the gods who are celebrated being

apparently elemental deities, such as the Sun god. The Theosophic element was more abundantly developed at a subsequent and more speculative period. The later sacred books of the Hindus are very numerous, and very voluminous, a good deal of them being taken up with mere mythology, tales of the amours and battles of gods, heroes and demons. A considerable space is also occupied with minute details of religious rites and ceremonies. Another portion is of the speculative cast; and it is with these we have now to do. As philosophers among ourselves do not agree, but Kant and Schelling, Fichte and Hegel, Berkeley and Hamilton have their diverse theories and separate schools of followers, so has it been in the East. The sacred books of Hinduism no more agree with each other than the learned and lofty treatises of transcendental Germany. To expound all the systems which Hindu sages have taught, would require a combination of leisure, learning, and mental power, which I have not at command. Still there seem to be some salient and prevailing points scattered throughout these systems which it may be interesting to notice.

Let us first take up those metaphysical puzzles, Space and Time. It has been held in Europe, you are aware, by certain philosophers, that these are two essential attributes inherent in the Divine Being. It has been also taught by other thinkers that they are nothing but forms of thought; that is, that we can't think of anything as existing or occurring except under the conditions of space and time. It has been further held by some, that space and time have been created by God, just as the material universe has been created which exists in them. This last hypothesis I must confess is one I can't properly understand; but it is somewhat akin to a Hindu idea on the subject. According to this idea, space is an original element of bodies ranking with the other elements of

fire, air, earth and water. When this whole universe, yet undeveloped, was contained within the limits of the primal germinal point, which was the seed from which all things issued forth, all space was also enclosed within that point, and outside of it was neither existence nor extension.

Such is the theory put forth, and which seems simply unintelligible to men of obtuser European intellect. This idea regarding space is not, however, one of very much importance. The theory concerning time is very much more worthy of remark. The idea of unbeginning, unending time is, we all feel, a very staggering one; the Reason may affirm it, but the Imagination cannot grasp it. What relation can any reach of ages, however long,—embodying a series of events however protracted,—what relation can it bear to eternal duration? Millions of millenniums are no more than a second to eternity. It seems as if eternity must be left empty, because no possible train of events could fill it. But the difficulty may be solved by supposing the train when ended to begin again. If we assume that all things move in cycles, then we shall have less difficulty in fancying time always progressing, yet always occupied. This is the theory that is found not only in Hinduism, but more generally throughout the East. The idea of the whole of time being measured out by revolving periods is one naturally suggested by visible phenomena. The day, the month, and the year furnish recurring cycles, which are very easily noted. The astronomical knowledge of the Hindus enabled them to form the idea of cycles more extended and less obvious. We find in one of their books a calculation of the number of years that must elapse from the moment when the sun, the earth, and the five planets are all in the same straight line till the point of time when they shall again occupy the same position. As the length of each planetary year had to be determined, as well as the actual position of

each planet fixed, before this calculation could have been made, we see that the advance which had been made in those early ages, both in mathematics and astronomy, was by no means small. The motion of translation, which modern science has discovered in our solar system, indicates a cycle of most stupendous magnitude. I believe it has been calculated that it will take our sun, with his train of attendant planets, eighteen millions of years to perform one revolution round the centre of the stellar system to which he belongs ; and this enormous period may be only a trifle to the cycle measured out by the revolution of that stellar system itself round some other point in space. We may notice that not only does nature measure out our time cyclically, but the mechanism by which we mark time proceeds on the same idea. A clock is a mechanical arrangement of wheels, and on its dial face we have the circles travelled over by the second hand, the minute hand, and the hour hand ; in short, a system of conveniently determined cycles. It is not unlikely that the whole material universe is under cyclic law, and that our own immortal being, taking now that immortality for granted, may have its history divided by cyclic periods in a future state as in this present one. What strikes us, however, as the strange peculiarity in the Eastern idea is this, that each ultimate cycle should be considered as the unvaried and invariable repetition of the same identical phenomena. Perhaps even a tinge of absurdity appears to characterise such a theory ; but we must remember that each great cycle is looked on as exhausting all possible phases of phenomena. Our common conception of eternal time may be compared to a straight line, of which we can see neither the beginning nor the end. Our imagination embraces a certain portion of time, but in striving to think of it as eternal, we have to add on perpetually to each end, going back to the past, and onwards to the future, but never reaching a limit in either

direction. The cyclicist comes to you and says, "This line, that seems to you to be straight, only seems so because your vision is so limited. It is an arc of an immense circle. A line drawn on the ground seems straight to your bodily eye, but it is in reality a portion of a circle of the earth's circumference. So in reference to time. Any particular part is only a little fragment of an ultimate cycle." If it be objected that the combinations of phenomena are really infinite, it may be rejoined that mathematics teaches that an infinite series may be summed up into a definite quantity. Nay, is not a second of time, itself capable of absolutely infinite sub-division. Eternity must be a fixed whole, and not an unending series; and the easiest way to image it as a whole, is under the idea of a perfect cycle.

We may notice that although we do not accept the Oriental theory, we have nevertheless adopted the symbolism which expresses it. In the Masonic coat of arms, and other such devices, the surrounding circle represents eternity. A serpent with its tail in its mouth is a favourite artistic variation of the circle, and is frequently associated with the Deity in paintings. I remember seeing, at Florence, a grand fresco on the ceiling of the principal apartment in one of the old palaces of that most illustrious city; the fresco consisted of a vast multitude of figures, arranged in groups, so engaged as to image out the various aspects of all this many-coloured life of ours — commerce, war and husbandry, feasts, nuptials and worship, our toils, joys and griefs, from the cradle to the grave, and on to judgment, and that great future which lies beyond. Round about the whole varied scene, enclosing all the acts of the stirring touching drama, was coiled the vast dark serpent; and we might fancy that had the eye of some ancient stately white-haired Brahmin rested on that rich product of the Italian pencil, he would have smiled approvingly as he read the meaning, that eternity is only the ceaseless repetition

of that splendid mournful drama, for which earth and heaven form the mighty stage, and gods equally with men come forth as players.

Let us now turn our attention to the question of Being. What is it that exists, or what relations are there between such things as do exist? Eastern theosophy concisely answers by asserting the Unity of Being. Let us endeavour to approach this idea from the scientific side.

The highest results of modern research and discovery seem often to lead us back again to the first simple ideas which preceded the birth of science. Something of this kind may perhaps be affirmed of the idea of a cosmos, or complete physical universe, made up of many parts constituting one great whole. The savage looks upon the sun, moon and stars, as the lights that are fastened in the blue roof of that great house of his, which has the whole earth for its floor, just as splintered pinewood shines from the covering of his rude wigwam. The progress of the physical sciences in later times has served to develop very fully the cosmical idea. The discovery of gravitation shows that all bodies exert force on each other throughout the immeasurable reaches of space. Spectrum analysis has revealed that the same ingredients are found in other worlds, which have gone to build up our own. In regard to telluric phenomena, we have learnt how science runs into science, and how closely knit the various operations of nature are throughout the globe. In short, we have come to look at the universe more as one great whole, of which all the parts and processes are bound together by the closest links, than as a vast congeries of systems of bodies and groups of phenomena. The cosmical idea is that of the unity of the physical universe.

But man soon felt that he differed from all other beings of which his senses gave him knowledge. He became

reflectively conscious of a higher inward nature ; of attributes of reason, affection and will, which belonged to a soul within him. With this came the conviction, that soul or spirit in some infinite form must of necessity exist. These two questions then had to be solved : What was the relation of the Supreme Spirit to the physical universe ? and What was man's relation to the Infinite Spirit ? The relation of the Great Spirit to the great world had to be determined. In seeking to accomplish this, a guiding light was afforded by man's own constitution, especially as viewed in its development. The life of the individual man began in a seminal germ. The vitality inherent in that germ under favouring conditions led to its expansion and the gradual shaping of the parts and organs, till the embryo had grown into the full-formed human being. In the same way the seed by its own vital force could shape itself out into a mighty tree. The radical life of the germ was the prime agent in producing the full development, and that life still existed diffused throughout the entire plant or animal. Let the same idea be applied to this great universe. At first there was nothing but the primal molecule, the seed of all things yet to be. From that atom was the whole universe developed, and the principle of life which existed in the atom animates the expanded system. Such is the fundamental theosophic idea. Put into the form of legend, it runs thus. The supreme being called Brumhu (not to be confounded with Brahma, the first member of the so-called Hindu triad) has two alternate states of existence. While he is in one state it is the night of Brumhu, and when he passes into the other it is the day of Brumhu. During the night he exists as an atom, which atom includes all being, outside of which there is nothing. In this state he is wholly unconscious, and remains thus for an enormous period of ages. At length he becomes conscious of himself, and says "I am." With this he immediately

begins to expand ; the five elements of fire, air, earth, water and space issue forth from him, and from these the heavens and earth, gods and men, and all things else are formed. The day of Brumhu has begun, and a series of ages pass away full of life and incident, till at last the night approaches ; all things are resolved into the five elements again ; these rush together and contract, till they reach the dimensions of the original molecule. The night of Brumhu has then set in, to be succeeded in due season by the day ; and day and night go on in the self-same cyclic round for ever and for ever. This general theory may be termed Pantheistic, because in it God and the universe are confounded and made one. The Theistic idea separates the essence or substance of the Deity from the universe ; although it acknowledges the stamp of divinity on it. In every product of human thought and skill the material employed is made to coalesce, so to speak, with an effluence from the human spirit, and it remains an external revelation of the man who made it. In the dome of that stupendous structure, the Basilica of St. Peter's at Rome, in the colossal greatness of the marble Moses, in the prophets and sybils portrayed on the ceiling of the Sistine Chapel, and in the terrors and glories of the Last Judgment which covers its awful wall,—in these works we have not mere stone and colour, but emanations, as it were, from the mind and heart of Michael Angelo. We learn the man from the witness of his works, but we are not in the least danger of confounding his personal existence with that of the marble or the canvas. So God shows what he is, in the theistic view, through the universe he has made. Creation is the visible garment in which the Invisible wraps himself, and enfolded within which we recognise the majesty of his mighty presence. Believing in his omnipresent sustaining power and rule, Theists often employ, though in another sense, words that might bear a Pantheistic turn. “ In

him we live and move and have our being." "By him all things consist."

"Thou art, O Lord, the life and light
Of all this wondrous world we see;
Its glow by day, its smile by night,
Are but reflections caught from Thee.
Where'er we turn, Thy beauties shine,
And all things fair and bright are Thine."

We have given the legendary form of Pantheism, and have seen that its fundamental idea is the identity of the Supreme Being and the universe, of God and the world. But Pantheism has several different phases. First, we have it in its most materialistic or positive form. To recur to our former illustration, drawn from the development of the tree from the seed, or of man himself from a vital germ: Whatever is found in the completed organism may be said to have been implicitly contained in the seminal source of being; and whatever has a place within the bounds of the universe lay hid in the First Great Cause, and still continues a part of himself. True it is, the analogy fails in one point. The materials out of which trees and animals are built up are actually drawn from without, although assimilated, modified, and incorporated, according to the laws of organic life in each particular structure. The oak is indeed developed out of the acorn, but its stubborn timber and umbrageous leafage have been made up of atoms, derived through its roots from the sustaining soil, or by its pores from the ambient air. The vital force gives the form and regulates the processes, but the materials must be gathered from abroad. In the development of the universe, however, there could be no such alimentation; and whatever exists is part and parcel of the effluence from the divine germ, and an integral portion of its developed existence. In one word, all things are God. However alien such a theory may be from our modes of

thought, and however erroneous we may believe it to be, it becomes us at least to understand what it is before pronouncing on it. We hear a good many people making themselves exceedingly merry at the notion of "those black fellows" believing in such an insane absurdity as that a stone was God, or a stick was God. The only amusing thing about it is the ignorance and conceit of those white fellows that make such remarks. When a grave, learned, and dignified Brahmin gives utterance to his religious faith in such a form of creed, we may at least suppose that, however far astray he may be, there must yet be something in his belief that recommends it to his reason, and that he cannot attach credence to a mere string of futilities. What he says is, not that everything is God,—that is, that each individual object is the whole of deity,—but that all things are one God, or, in other words, that the entire universe is included in the Infinite Being. The mistake commonly made is just as if one got a paring of Demosthenes' finger nail, and, holding it up, cried out, Behold the great Athenian orator. According to what we have called the materialistic school of Pantheism, the Supreme Being is not looked on as possessed of personality, volition, or moral attribute. He may perhaps be best described as the substance of the universe, using the word *substance* in its philosophic sense, for that which underlies all phenomena. All apparent qualities, whether mental, moral, or physical, celestial, terrestrial, or infernal, are merely different modes of manifestation of the one universal substance. Everything that happens is but a phenomenal and outward change, the underlying essence being still the same. We observe one creature exist successively as an egg, a caterpillar, a chrysalis, and a butterfly. The same element is seen to pass from its frozen condition as ice to its liquid state as water, and finally to be sublimated into steam, only to form raindrops again, or return in

rattling hail. These are analogies which point to a subtler and sublimer truth. Everything in the world changes, fades, and fleets away. It is one ceaseless and perennial round of alterations. But under all these changes we are to recognise the one changeless, essential Being. The varying phenomena of the world no more affect that inner substance of which they are the outward manifestations, than the iridescent colours which play over the facets of a polished diamond affect the unalterable permanence of that most lustrous gem.

Most opposed to the materialistic phase of Pantheism is the Idealistic school. I should rather say, seemingly opposed, for those apparently antagonistic positions are found to shade away into one another. To the idealist there is no such thing at all as matter, or worlds, or men, or aught else. There is only One who exists, and all things that men commonly deem actual and real are nothing but phantasms and shadows. A man goes to sleep, and in his sleep he dreams; or he may dream when he is awake, and in his reverie his mind is filled with visions; he beholds great cities and gorgeous palaces, prancing steeds and royal chariots; he sees fields where husbandmen toil and homes where children play. Scene after scene passes before him. Many a life drama is acted out. There are weddings and funerals, deeds of kindness and acts of cruelty, things glorious and things grotesque—all full of seeming life and vividness, and yet nothing but delusions of a dream. So is it with this which we call the actual world. It is nothing but delusion—but shadowy representation. God alone is, and all things else are but thoughts of God. It is wonderful to find what a hold this theory has taken of the Hindu mind, so that a poor coolie, with nothing to cover his dusky person but a pennyworth of cotton rag, will gravely assure you that all things are only *maya*, that is, delusion. We have produced Bishop Berkeley,

a famous idealistic philosopher, a most loveable and sweet-spirited man ; but I scarcely imagine that Hodge, as he crushes the turnips under his iron-shod heel, walking across the fields to the beerhouse, could tell you much about the want of valid evidence for the existence of a material world.

Another variety of Pantheism may be called the Psychical theory, for want of a better word, although, as we shall notice presently, the expression is open to objection. The Idealistic theory denies the existence of anything except a supreme thinking mind. The Materialistic theory makes matter equally with mind constituents of Deity, and indeed reduces the Supreme Being to something equivalent or not much dissimilar to the organic life of a plant or animal. The Psychical theory, on the other hand, recognises the duality of mind and matter, and holds that the spirit of man is more akin to the Supreme than either his bodily frame or anything else material. It does not deny that the physical universe is a portion of the Infinite being, just as the body is part of the man. But the duality which is characteristic of human nature is held to belong equally to the divine. The Supreme Being is regarded less as the organic life of the universe, and more as its intelligent and ruling mind. He is the soul, of which the world is the body. With this idea is connected an interesting view of the nature of the human spirit. Each individual soul is regarded as a portion of the great Spirit, disjoined for the time, so as to constitute a separate being. When the tide ebbs away from a rocky shore, every wave-worn hollow is left filled with its own portion of salt sea-water. Thousands of these rock pools may be found by the enterprising naturalist who is bold enough to risk the perils of slippery weed and sharp-pointed stone in pursuit of the rare and beautiful creatures that may be there. Every little pool is a mimic sea, sharply defined by its own rocky walls.

But by-and-by the waves roll in again, and the pools are separate no more, but lose their isolated life in the unity of the one great ocean. And even thus portions of the Infinite Spirit are bounded for a season by the limiting surroundings of a finite lot; but by-and-by they shall return and be merged in the Infinite again. This theory of the human spirit lies at the foundation of two celebrated Oriental ideas, namely, transmigration and absorption. The first of these is perhaps the best known of all the theosophic ideas the East has produced, as even in very early times it spread very widely, and was imported into Europe by Pythagoras and other philosophers. The Greek name metempsychosis expresses the idea very well, which is, that the soul or psyche passed from one body into another, and became thus the animating principle of successive physical forms. This idea probably recommended itself to men's minds partly from what they observed in the processes of the material world, in which the form of matter changes without the matter being destroyed. The researches of modern chemistry have impressed this truth on us with the utmost force, as we are now able to determine the exact quantities of all the resulting substances after combustion, natural decomposition, or any other mode of apparent destruction; so that we are accustomed to say that not an atom of matter has perished since its creation. In a rude way the same truth was observed in early ages. The body dies and disappears, but it has only been resolved into its elements, which enter again into new forms of being. If matter then be so absolutely indestructible, shall we suppose that a higher essence perishes? Is it not more reasonable to believe that it is merely transferred to another organism? New bodies are formed out of the old ones, and a new life is but the old life back again. A question might be raised, however, as to the principle that determined the nature of the new existence. Was it all a matter of chance whether the

soul of Solomon put on the outward lineaments of King James the First, of learned memory, or took up its abode within the hide of Sancho Panza's ass? This question has received solution, and the whole Eastern theory regarding the general subject may be thus briefly stated. The portion of the Divine Spirit within an individual is doubly prisoned, first by the outer and coarser shell of the body, and then by an inner integument, which is not material. It is as if a little of the sea water of our previous illustration were enclosed in a fine membrane, and this again confined within a box. To set the water free, it would be needful not only to destroy the box, but to pierce the membrane also. So the portion of divine spirit can only return to the infinite when its material and immaterial prisons have both been thrown off. Death destroys only the outer one, the body, and the spirit, still confined, is transferred to another body. But the wise man who succeeds in ridding his spirit of its inner bonds attains at once to absorption into the Infinite. Now this inner environment of the spirit consists of the passions, feelings and appetites of our nature. We might venture to call it the psyche, or soul, making use of the Greek distinction between that and *πνεῦμα*, or spirit. The spirit is divine; it is seated within the soul, as it were, and works through those affections and feelings which are merely human, or have reference to the organs of the body and the outer world. You will remember that in the Greek Testament the *ψυχικὸς ἄνθρωπος* is about equivalent to *σαρκικὸς ἄνθρωπος*, and is put in opposition to *πνευματικὸς ἄνθρωπος*. The spiritual man is the opposite of the carnal man, and the latter is much the same as the soullly man, if such a barbarous word can be pardoned. Perhaps we might adopt the Coleridgian phraseology, and say that the fleshly man is the man who is ruled by the understanding, and who is by consequence the antagonist

of him who follows the reason. But to return. It is our highest duty, say the Hindoo sages, to annihilate all the passions and affections. This is to be accomplished by a complete withdrawal from the world, and leading a life of isolated contemplation and rigid austerity. By so doing, the spirit will be set free at death to return and be merged in its great original. The souls of all, however, who interest themselves in the common concerns of life, must reappear on earth by a new birth, under some form which is determined by the character of the life they have led. The excellent are rewarded by receiving a higher birth, and the wicked are punished by being made to assume some degraded and miserable form. Absorption, however, is the final end of all. The good attain it soon; the wicked are purified by the purgatorial process of thousands of births, till they reach absorption also. So familiar is this idea to the Hindus that when they see the sufferings of some wretched beast, or hear some tale of misfortune, it is quite common to hear them remark that the sufferer must have sinned grievously in some former birth. This idea seems to have been hinted at in the question of the disciples of Jesus, when they asked, "Master, who did sin, *this man* or his parents, that he was born blind?" The wealthy and prosperous, on the other hand, are regarded as enjoying the fruits of that merit which they had acquired in a previous existence. The idea of the character of one life determining the nature of the next is not without a sort of fanciful beauty, and leads one to think of Mendelssohn charming the twilight of some myrtle grove with lovelorn trills, under the form of the sweet nightingale, or of Grimaldi playing mischievous pranks at some old lady's breakfast table, under the guise of her pet monkey.

The rules laid down for the ascetic life by which absorption is to be obtained are utterly beyond the powers of the

human frame, and the tales told of what their sages have done are simply incredible. That a holy man should sit under a tree for months and years without opening eye or moving limb, without food, shelter, or drop of water, unconscious of every passing thing, and without any bodily sensations, while his mind was entranced with one changeless conception of the Infinite one, this can only be regarded by us as a figment; and the Hindus themselves acknowledge that such virtue surpasses modern power, and that the ancient might has passed away. Candidates for absorption, however, find means to comfort themselves. If man cannot attain to his ideal, he must bring down his ideal to the requirements of the possible. And thus a Brahman may indulge the flesh with a good many comforts, and yet look upon these as in no wise affecting his candidature for absorption, if he contemplates God in his mind. To hold that illumination of the spirit may raise a man above all concern as to what he does in the flesh is an idea which has shown itself very powerfully even within the history of the Christian church, and the most boastful illuminati have been generally the vilest of men. It is remarkable that asceticism and sensuality have a natural connection; they are like the opposite poles in magnetism, one of which always develops the other; or like the hot and cold stages in a fever. It is said that in India a sort of secret society does or used to exist, the members of which held the doctrine that the proper way to destroy the passions is by exhausting them, which is to be accomplished by indulging them to the utmost extent. It is no doubt true that a painful craving is at once removed by furnishing the appropriate object. A man, for instance, who has always his comfortable meals, never needs to battle against hunger. But to assume, as a guiding principle, that propensities are to be indulged to the utmost, is to urge men to the most brutish excesses and the filthiest crimes. Such a sect

may well keep its secret, for even among the heathen its portion would be infamy.

An interesting question may be asked, as to how it is that absorption should possess such a charm to the Eastern mind as it seems to do. Our own feelings in view of such an end are very well expressed in these words of the Laureate ;

That each who seems a separate whole
Should move his rounds and, fusing all
The skirts of self, again should fall
Remerging in the general soul.

Is faith as vague, as all unsweet ?
Eternal form shall still divide
The eternal soul from all beside,
And I shall know him when we meet.

Absorption seems but another name for annihilation, and our instincts shrink from an extinction of being, according to the sentiment Milton grandly places in the mouth of Belial,

“For who would lose,
Though full of pain, this intellectual being,
Those thoughts that wander through eternity,
To perish rather, swallowed up and lost
In the wide womb of uncreated night,
Devoid of sense and motion?”

It has been suggested, in answer to such an enquiry, that the Hindu does not enjoy life as we do. His vital energy is feebler, and he feels more the burden of the flesh and the troubles of an earthly lot, in the semi-civilised condition in which he lives. This explanation seems to me somewhat unsatisfactory. I should rather seek the solution in believing that absorption is not in their view what it seems to us ; that they do not regard it as the cessation of individual existence, but the attainment to an unlimited being. Let me

endeavour to explain this by a reference to some of our own ideas.

When the mind is greatly moved and elevated by the contemplation of nature, we feel as if we were raised out of ourselves, our life set free from personal limitations, and mingled and made one with nature's life. Observe Tennyson's language in addressing the churchyard yew—

And gazing on thee, sullen tree,
Sick for thy stubborn hardihood,
I seem to fail from out my blood,
And grow incorporate into thee.

The same idea, of commingling our life with that of the great universe, is touched on in the following passages, from Byron and Wordsworth—

“Then stirs the feeling infinite, so felt
In solitude, where we are least alone:
A truth which through our being then doth melt,
And purifies from self.”

“Nor less, I trust,
To them I may have owed another gift,
Of aspect more sublime; that blessed mood,
In which the burden of the mystery,
In which the heavy and the weary weight
Of all this unintelligible world,
Is lightened: that serene and blessed mood,
In which the affections gently lead us on,
Until the breath of this corporeal frame,
And even the motion of our human blood,
Almost suspended, we are laid asleep
In body, and become a living soul:
While with an eye made quiet by the power
Of harmony, and the deep power of joy,
We see into the life of things.”

“And I have felt
A presence that disturbs me with the joy
Of elevated thoughts; a sense sublime

Of something far more deeply interfused,
 Whose dwelling is the light of setting suns,
 And the round ocean, and the living air,
 And the blue sky, and in the mind of man
 A motion and a spirit, that impels
 All thinking things, all objects of all thoughts,
 And rolls through all things."

Besides this mode of living a wider life than our own, by entering into universal nature's being, we can rise beyond ourselves in living a wider human life. Men of comprehensive intellect, deep heart, and elevated aim often feel, and strive, and live as representing so to speak the consciousness of a whole community. The great leader of Israel's hosts through the wide wilderness was such a man; a man every beat of whose heart was for his people. We believe also in a greater one, whose life-history was the conflict and triumph of all humanity. Then there is still another thought. The most pious souls have longed for a full and ever present consciousness of a mutual indwelling of themselves and God. This has not been confined to the Christian faith; but scarcely any stronger expression of it could be found than is contained in the Christian writings. "Abide in me, and I in you." "I in them and thou in me, that they may be made perfect in one." "I am crucified with Christ; nevertheless I live; yet not I, but Christ liveth in me." The mysticism of all religions, however, has seized on the same idea, of what may be called the spiritual absorption of the human soul in Deity. Of course, none of these ideas are identical with the theory of absorption as Hinduism teaches it, but they seem to be sufficiently related to it to justify us in suggesting that it is an elevation and not an extinction of being the Eastern devotee desires.

Without taking upon ourselves to say what the poet actually means, we may observe an echo of the Eastern idea

in some expressions in the following lines from "In Memoriam" —

Thy voice is on the rolling air ;
 I hear thee where the waters run ;
 Thou standest in the rising sun ;
 And in the setting thou art fair.

What art thou, then? I cannot guess.
 But though I seem in star and flower
 To feel thee *some diffusive power*,
 I do not therefore love thee less.

My love involves the love before ;
 My love is vaster passion now,
 Though *mixed with God and nature thou*,
 I seem to love thee more and more.

Perhaps another suggestion may be offered, as to the charm the idea of absorption seems to possess to the Eastern mind, if what has been said above be not deemed appropriate. The idea of each human spirit being endued with a separate immortality, and destined to an eternal individual history, seems quite alien to the general strain of all speculative philosophisings. The prevailing idea seems to be that this whole great system of things must come to an end, and its materials be used again in shaping the new system that shall take its place. Every separate philosophy had its own theory of the nature of the dissolution and the recreation, but all agreed pretty fairly in the point of an ultimate resolution of all things into their primal elements, whether these were material atoms or diviner essence, previous to the commencement of a new grand epoch. The cyclic revolutions of Eastern speculation include this idea, as we have already explained. It therefore became necessary to accept the idea of the extinction of our personal existence. Perhaps, after all, the conception of our ultimately ceasing to be is not so alien to us as some have supposed.

It might fairly be argued that the necessity of eternal being, of a life which we never can throw off, is much more appalling. Under this view, we feel that last resource cut off by which we might escape from the evils that befall us. If we cannot cease to be, our misery also may have no end. The thought of dropping into nothingness may therefore have its charm. Once accepted, the mind proceeds to idealise it, and invest it with beauty and power. What is the noblest, sweetest life, but that which is most steadfast, serene and tranquil, where agitations all have ceased, and passions do not stir. That perfect rest is blessedness. Is not death even such a rest? Not the baser death that resolves the fleshly frame into its kindred dust, but the nobler step by which the spirit passes from its separate prisoning, to be lost in the infinity of its kindred spirit. We know how powerfully this feeling has been wrought out in splendid works of art, in which death is idealised as the great friend of man, the soother of the sorrowing, and releaser of the weary and toil-broken. May not such a feeling lie under the yearning of the Eastern devotee for that absorption which shall make cease to be the suffering and burdened creature, because he shall be lost in God. As illustrative of the feelings we have touched on, let me add another quotation or two from our own poets. In his Ode to a Nightingale, Keats has the following stanza:—

“Darkling, I listen; and for many a time
 I have been half in love with easeful Death;
 Called him soft names in many a mused rhyme,
 To take into the air my quiet breath;
 Now more than ever seems it rich to die,
 To cease upon the midnight with no pain,
 While thou art pouring forth thy soul abroad
 In such an ecstasy!
 Still wouldst thou sing, and I have ears in vain
 To thy high requiem, become a sod.”

From that new masterpiece of Tennyson's genius
 "Lucretius," the following lines are taken :—

"The Gods, who haunt
 The lucid interspace of world and world,
 Where never creeps a cloud, or moves a wind,
 Nor ever falls the least white star of snow,
 Nor ever lowest roll of thunder moans,
 Nor sound of human sorrow mounts, to mar
 Their sacred everlasting calm ! and such,
 Not all so fine, nor so divine a calm,
 Not such, nor all unlike it, man may gain,
 Letting his own life go."

"And therefore now
 Let her, that is the womb and tomb of all,
 Great Nature, take, and, forcing far apart
 Those blind beginnings that have made me man,
 Dash them anew together at her will
 Through all her cycles — into man once more,
 Or beast, or bird, or fish, or opulent flower."

"O thou
 Passionless bride, divine Tranquillity,
 Yearned after by the wisest of the wise.
 Who fail to find thee, being as thou art
 Without one pleasure and without one pain,
 Howbeit I know thou surely must be mine
 Or soon or late, yet out of season thus
 I woo thee roughly, for thou carest not
 How roughly men may woo thee, so they win.
 Thus, thus : the soul flies out and dies in the air."

I cannot pursue these topics any further at present, and am afraid I have trespassed on your patience too long. Let me say, in conclusion, what is of itself sufficiently obvious, that it is not the object of this paper to guide the learned in their researches, but that I have endeavoured to seize some general

ideas which have struck me in a desultory study of the subject, and to develop these freely from our own point of view; to the intent that it may be seen that, besides their mythological absurdities, Eastern systems contain some philosophic elements. The proper religious aspects of the subject cannot of course be entered on here.

TWELFTH ORDINARY MEETING.

ROYAL INSTITUTION, 6th APRIL, 1868.

J. BIRKBECK NEVINS, M.D., VICE-PRESIDENT,
in the Chair.

The routine business of the Society having been transacted, the following Paper was then read :—

ALCHEMY.

BY MR. E. DAVIES, F.C.S.

THERE is great interest in looking back to the origin and early history of any of the sciences, to the study of which we have devoted ourselves. In the light of present knowledge, we see the errors into which our predecessors fell, sometimes with pity, which might be tinged with contempt, but for the remembrance that we are fallible, and that our speculations and theories may provoke a smile in days to come; and sometimes with admiration for the energy and perseverance which those displayed who laid the foundations on which we have built. Thus the astronomer thinks of the Chaldean shepherds and Eastern sages, who, without optic aids, and in spite of false theories, attained such marvellous acquaintance with the motions of the heavenly bodies. He smiles at Astrology, and rejects much that they held true, but he thoroughly admires their devotion to science, and their unwearied efforts to thread the mighty maze of the universe. The student of natural history by no means expects ever to see all the marvellous creatures which Pliny describes, but he can take a lesson from his life-long research into nature, and like him strive to see all that he can, taking warning from him not to believe all that is told by travellers.

Chemistry presents in the past the same mingling of chaff and wheat which is seen in the gatherings of other sciences, but perhaps it was more loaded with error than any of them. This is due to many causes. One was, doubtless, the difficulty of tracing a substance through the protean

changes of colour and other properties which it undergoes in its various combinations. Whilst, in other sciences, the student has to deal with what he sees, the chemist has generally to deal with what he cannot see. Take iron, for example; who would suspect its presence in the ore, or in its salts, until the knowledge was imparted, either by instruction or by patient experiment? Thus the early chemists often only educed, when they thought that they had produced. The waters of certain mines were supposed to have the power of transforming iron into copper. True, the iron disappeared and copper replaced it, and nothing but a power of analysis, which was not then possessed, could explain that the copper was in the original liquid, and that the iron simply took its place in solution. Another source of error was, the mystical phraseology in which the Alchemists chose to conceal, rather than to reveal, their discoveries. Another, and the greatest, was the setting up as their aim an object far in advance of their abilities. The discovery of a means of transmuting base metals into gold, and of a medicine which should cure all diseases and confer immortality, was the object of their fond aspiration, and with their eyes fixed on these delusive phantoms they overlooked the treasures at their feet. These were truly great ideas, but they were beyond their reach, and in striving for them they spent a life of toil, and died in disappointment.

Many of the useful arts depend on chemical processes, in the sense in which we use the word "chemical" now. Metallurgy, dyeing, the manufacture of porcelain and glass, were all known in the early ages of the world, and are all chemistry in practice. Had mankind simply gone on accumulating facts, leaving theories alone until a foundation was laid for them, we should have heard nothing of Alchemy. As however, this course was not followed, we find the name of Chemistry, *χημια*, applied to the art of making gold and

silver in the fifth century, in the earliest work known in which the word occurs. This work, entitled, *A Faithful Description of the Sacred and Divine Art of making Gold and Silver*, by Zosimus, the Panapolite, carries back the art to a far distant period, for it attributes it to the sons of God mentioned in the 6th chapter of Genesis, who, it states, were angels allured from heaven by the charms of women, to whom they imparted the secret of making precious metals. Suidas, in his *Lexicon*, written in the eleventh century, says, under the word *χημεία*, “The preparation of silver and gold. The books on it were sought after by Diocletian, and burnt, on account of the new attempts made by the Egyptians against him. He treated them with cruelty and harshness, as he sought out the books written by the ancients, on the chemistry of gold and silver, and burnt them. His object was to prevent the Egyptians from becoming rich by the knowledge of this art, lest, emboldened by abundance of wealth, they might be induced afterwards to resist the Romans.” It is, however, doubtful whether Alchemy can claim such high antiquity as this; for the silence of Latin authors, especially Pliny, on the subject, would lead us to believe that it took its rise among the Greeks at a later date. The earliest works on the subject are Greek, and a long list, comprising eighty works, is given in Boerhaave’s *Chemistry*, 1753. Many of these evidently bear feigned names, such as Isis, the prophetess, to her son Horus; Moses, the prophet, on chemical composition; Cleopatra, wife of Ptolemy, to whom are attributed four works. They are supposed to have been principally the works of monks, written between the fifth and eighth centuries. They all mean by chemistry the transmutation of imperfect metals into gold or silver.

From the Greeks it passed to the Arabians, amongst whom it obtained its prefix “Al,” and, travelling through Spain, in the eleventh century, began to spread over Europe.

Among the Arabians the most remarkable was Geber, if indeed he be not a myth, as so many of the Alchemists seem to be. He is said to have lived in the eighth century, and was in possession of considerable chemical knowledge. He knew the carbonates of potassium and sodium, saltpetre, alum, sulphate of iron, borax, corrosive sublimate, oxide of mercury, milk of sulphur, and nitrate of silver; also sulphuric, nitric, and acetic acids, and the preparation of caustic soda and sal ammoniac. This is certainly a very respectable list, for that early date. Unfortunately, all that was valuable in his researches he considered as mere accessories to the great object of making gold. It was Geber who first gave rise unwittingly to the view that the same philosopher's stone which would transmute base metals into gold, would also heal all the diseases to which man is subject. In the metaphorical language which he employed, the base metals are leprous men, and gold a healthy one. Gold prepared in a certain way he supposed could change other metals into its own likeness; hence he says, gold thus prepared cures lepra, cures all diseases. This, taken literally, appears to have originated the idea of a universal medicine, which has never since deserted the human mind. From the elixir vitæ to Holloway's pills, there have been constantly offered to the world panaceas for every ill, remedies for every disease.

For four centuries after his death little appears to have been written of importance, but about the thirteenth century several able chemists arose. Albertus Magnus and Thomas Aquinas were among these, but perhaps the most renowned, and to Englishmen the most interesting, was Roger Bacon. Eighteen works by him on Alchemy remain. He was acquainted with gunpowder, though it is not certain that he was an inventor of it. He says, "Mix together saltpetre, *luru vopo con utriet*, and sulphur, and you will make thunder and light-

ning, if you know the manner of mixing them." Here we have an example of the manner in which the Alchemists only gave a half confidence to their readers, and threw a veil of mystery over their processes.

Raymond Lully was a friend of Roger Bacon. In his works, especially the *Philosophical and Chemical Experiments*, we have a tolerably clear description of the method of making the philosopher's stone; at least, clear for an Alchemist. Like all the processes which I have seen, it is impossible to follow it quite through; there is sure to be some reaction quite contrary to anything in modern chemistry, or else some material is directed to be used under a name which cannot now be identified. The white elixir of Lully seems to consist of a mixture of chloride and nitrate of silver, and of it one ounce is to be added to one ounce of silver and seven ounces of arsenide of copper, and you are to get nine ounces of pure silver. The red elixir for making gold is not so intelligible as the white.

Time would fail to give even a list of Alchemists; their works, for the most part mere tracts, are numbered by thousands, and of most, only the titles now remain. Whether we should be much wiser by studying "*Verbum abbreviatum de leone viridi*," "*Rosa novella*," "*Flos florum*," *et id genus omne*, may now be doubted. A few words should be said, however, about two alchemists, Basil Valentine and Paracelsus. The former was the first to introduce chemical substances into medicine, and so began the war between the Galenists and the chemists, which raged in the sixteenth century. Medicine was then at a very low ebb; the teaching of Galen and the Arabians, especially of Avicenna, was blindly followed, and bleeding, purging and emetics constituted the routine of medical treatment. The remedies used, drawn from the vegetable and animal kingdoms, were often disgusting and absurd, and generally useless; and thus, when a new school

of medical chemists arose, it met with a favourable reception. Valentine, in his *Triumphal Chariot of Antimony*, vaunts the preparations of that metal, as little less than panaceas; and he also seems to have introduced mercurial compounds. Armed with remedies of such powerful action as these, the chemists laughed to scorn the pretensions of the Galenists, and certainly did kill or cure, whilst the Galenists did little else than kill. Of these bold innovators, Paracelsus, a strange medley of genius, madness and knavery, with impudence unbounded, and a mysticism which, founded on the Cabala, owed much to his own wild imagination, drew many disciples around him. All who sought emancipation from ancient trammels, and who believed that all wisdom was not bestowed on their forefathers, followed joyfully this new leader. His diatribes against those who differed from him, and his undistinguishing attacks on old systems, were sometimes unjust, and perhaps weakened his influence; but it would seem that no new views can ever make themselves felt, unless they are urged with an enthusiasm, or even violence, which in after years, when they are received as matters of course, appears uncalled for. The exclusive search after the transmutation of metals was now abandoned, and the alchemists became chemists. From that time more practical objects were aimed at, and light began to dawn upon the world in reference to the nature of the substances of which our earth is formed, and new discoveries in manufactures flowed from the investigations made by men whose minds were not solely devoted to one object.

The history of Alchemy might here be supposed to end, but such a fascinating pursuit as the one which promises boundless wealth has never lacked devotees, and even to our own times men have been found who will not believe that Alchemy is but an *ignis fatuus*. They are unknown to the world, but now and then they are to be met with, and a few

years ago one applied to a chemist in Manchester for a situation as assistant. He had spent all his money in the bottomless abyss of Alchemy, but his faith was firm in the possibility of the attainment of his object.

In the *Times* of April 6th, 1865, was the following advertisement—"To students in Alchemy. Any gentleman who may require an assistant can be recommended to an industrious foreigner, who has studied the books of the Alchemists, for the last fifteen years, and is a good experimentalist. He is now in Transylvania, but every information will be given by applying to Charles F. Zimpel, M.D., 182, Marylebone Road."

In 1862, the price of Bismuth went up in six months from 9s. 6d. to 20s. per lb., and it is said that this was occasioned by a joint stock company buying up all the bismuth in the market, to convert it into gold. If it were so, I fear that the shareholders are left lamenting.

In 1866, two Frenchmen, MM. Henry Favre and Juste Frantz, presented a paper to the Academy of Sciences, in which they give a method for transmuting silver into gold. M. Favre also delivered a public lecture on the subject, and generously made the process known. It is very simple, but up to the present time I have not heard of any one repeating it with success.

It may be interesting to review some of the views held by Alchemists as to the constitution of metals and salts. Owing to the mystical method in which they expressed themselves, there is some difficulty in discovering their meaning, but the most favourite view was, that the elements or substrata of all solid bodies are mercury, sulphur and salts. These terms must not be supposed to be used with reference to the substances known to us under these names. Their mercury was a hypothetical body, which might be fusible or infusible, volatile or fixed in the fire,

and in its various forms, or allotropic states in modern phraseology, was the metallic principle. The sulphur also might be either fusible and volatile, or fixed, and was supposed to be the cause of colour in some metals, and of combustibility or oxidizability in others. It was the combustible principle, and, united with the philosophical mercury, constituted all metals. Geber says, "Gold is created of the most subtle substance of mercury, and is of a most clear fixture, and of a small substance of sulphur, clean and of pure redness, fixed, clear, and changed from its own nature, tinging that. Iron is composed of earthy mercury and earthy sulphur highly fixed, the latter in by far the greatest quantity." Other metals are described in a similar manner; and it is remarkable that in Boerhaave's *Chemistry*, in 1753, almost identical views are taught by that clever chemist, as facts not needing demonstration. What was meant by salt is not so clear. They knew how to make many of the salts of modern chemistry, and must have known that they contained the acid and metal from which they had been made, and which could be again extracted from them; and yet they had an idea that there is a saline principle underlying the various salts.

They evidently believed in the existence of matter apart from its properties. These might vary to any degree, and yet the matter itself be unchanged. On this theory, transmutation becomes intelligible, for if the metallic principle in all metals be the same, the alteration of the properties would not seem a hopeless task.

One of the most remarkable things in Alchemy is its relations with Astrology and the supernatural. The very names which the Alchemists bestowed on the metals, and the signs by which they represented them, were those which the Astrologer gave to the sun and planets. Gold, was Sol; silver, Luna; Mercury we still retain; Venus, copper; iron, Mars;

tin, Jupiter ; lead, Saturn. Van Helmont, says, " The stars are a cause of what we treat of, and this cause is not to be contemned." In all the works of Paracelsus are found evidences of a belief in the influence of spiritual beings, of an order inferior to man, in their having no soul, but of superior powers. The beautiful romance of *Ondine* makes us familiar with the name which he gave to the beings inhabiting the waters. For him, nymphs, salamanders, sylphs and pygmies inhabited the air, the earth, the very fire, and had it in their power to impart occult knowledge to the man who could hold intercourse with them. A kind of religious feeling was mingled with the earthly passion for wealth. Many held that only to the pure in heart and life would be given the knowledge of the Divine art, and that in vain would be all manipulation with furnace and crucible, whilst evil passions raged in the mind of the adept. They tell you, " Take, in the name of God, great bay salt," and when you have found out the great secret, you are to " give God thanks and remember the poor." Raymond Lully says to the adept who has followed his directions for making the philosopher's stone, " God grant that you may obtain it, and give unto Almighty God a good reckoning of the health of thy soul." Van Helmont breaks out into the following rhapsody ; " O happy, and thrice happy, is that artificer who, by the most merciful benediction of the highest Jehovah, pursues the art of confecting and preparing that (as it were Divine) salt ; by the efficacious operation of which a metallick or mineral body is corrupted, destroyed, and dyes ; yet the soul thereof is in the meanwhile revived to a glorious resurrection of a philosophical body. Yea, I say, most happy is the son of that man, who by his prayers obtains this Art of Arts unto the Glory of God. For it is most certain that this mystery can be known in no other way, unless it be drawn and imbibed from God, the Fountain of Fountains." I cannot

deem all this hypocrisy; there were no doubt arrant impostors among these old Alchemists, who drained the dupes, who gave them funds to prosecute their researches, of every coin which knavery could extract from credulity; but that there were many with an enthusiastic faith and unwearied perseverance, who toiled with a patience which we can hardly realise, I do not doubt.

Did any of them attain the goal of their labours? To this it is difficult to reply. In many cases, where transmutation seemed to be effected, no doubt trickery and sleight of hand performed the feat, and the gold which came out of the crucible had been concealed in the materials employed, or was in some way introduced; but this will not explain all the cases reported; and unless we are prepared to reject evidence which we should unhesitatingly receive in other matters, the statement that base metals have been transmuted into silver and gold rests on a tolerably sure basis. Not to mention the case of M. Gros, a clergyman of Geneva, or the making of gold in Boyle's laboratory, the account at first hand given by Helvetius, in his *Vitulus Aureus*, appears to bear unexceptionable evidence. Here is the physician to the Prince of Orange, a man of extensive knowledge, by no means credulous, as shown by his writing a book to refute the pretensions of Sir Kenelm Digby and his sympathetic powder, who gives to the world in 1666 a description of his meeting with an Alchemist, from whom, after much persuasion, he obtains a small portion of a substance, not more than the size of half a rapeseed, with which, in the absence of the Alchemist, he converted six drams and two scruples of lead into the purest of gold, sustaining every test. As in all these cases, he saw the Alchemist no more. Helvetius was not himself an Alchemist, and was before rather doubtful of the existence of the philosopher's stone; and if in this matter he deceives us, at least he lies like truth. Another strange case is given

in the life of Dr. Adam Clarke, a learned scholar and commentator.

The question arises, Is it possible that transmutation can take place, judging by the light of modern science? So far as reasoning goes, unaccompanied by direct proof of the conversion of any of the so-called elements into others, I think that there is good reason to believe in the possibility of it. No one speaks of the sixty-four elements as certainly uncompounded forms of matter; on the contrary, in any of the best works on chemistry, we find it expressly stated that it is probable that in time some of them will prove to be compounds. No later than last year, one of our leading chemists, Dr. Frankland, discovered that a substance, which was called vanadium, and supposed to be an element, contained oxygen, and was really an oxide of vanadium. It is true that a new element was thus proved to exist, and so far it is not a case in point, but it shows that bodies may be considered elementary erroneously.

Among the elements there are several sets, generally in threes, which have much in common in their properties, and possess curious numerical relations. Dumas called attention to this long since; and these triads are discovered to be more numerous as further investigations are made. It is well known that chlorine, bromine and iodine are thus closely linked. They all possess an unpleasant suffocating odour, their specific gravities are in regular sequence, and their atomic weights are—chlorine = 35.5, bromine = 80, iodine = 127. The mean of the extremes is 81.25, and though this differs from the equivalent of bromine by an amount which the accuracy of modern analysis accounts large, there is sufficient approximation to provoke attention. At ordinary temperature, they present us with examples of the three physical states; chlorine is a gas, bromine, a liquid, and iodine, a solid.

Another group consists of the metals of the alkalies, all having a strong resemblance to one another. Lithium has the atomic weight 7, sodium = 23, potassium = 39, sodium being the exact mean, with a common difference of 16. Potassium is again the starting point of another triad. Potassium = 39, rubidium = 86, caesium = 133, with a common difference of 47, almost exactly three times the difference of the former triad. When we remember that in the latter triad the properties of the three metals are so similar, that but for spectrum analysis rubidium and caesium would probably never have been discovered, the peculiar relations of the atomic weight lends irresistible force to the view that these are not totally distinct forms of matter, and that we may hope to prove that they contain some element common to all of them.

There is a similar connection between the group of the metals of the alkaline earths; calcium = 40, strontium = 87.5, barium = 137; mean 88.5. In the salts of these metals, there are strong resemblances, with gradual differences; for example, sulphate of calcium is slightly soluble in water, sulphate of strontia less soluble, and sulphate of barium is almost totally insoluble.

Then, again, there is a group of metals closely allied by chemical properties, usually found together, and having similar atomic weight. These are, iron = 56, manganese = 55, cobalt = 58.7, nickel = 58.7. The last two are so closely united in their chemical reactions, that it is one of the most difficult analytical operations to separate them from one another.

Gold and platinum, beside their high specific gravity, which separates them from the ordinary metals by a wide interval, have almost identical atomic weights; gold = 197, and platinum = 197.4. Indium and Osmium, which constantly accompany platinum, are respectively 198 and 199.2;

whilst palladium and ruthenium, two metals also found in platinum ore, have the same atomic weight, 104.4.

These coincidences, and many others which might be mentioned, are too numerous, in the limited number of the elements, to be the result of chance; and they point to some connection in their ultimate composition.

So far we have seen great similarities of physical state with chemical differences. Another field of study introduces us to substances having the same chemical properties, but diverse physical states. This is allotropism. Who, looking on ordinary phosphorus and on the red modification, would suppose them to be chemically the same? Ordinary phosphorus is yellowish, soft, easily fusible, takes fire at very low temperatures, fumes in the air, and is most freely soluble in bisulphide of carbon. Red phosphorus is a dark red powder, fuses at 260°C ., takes fire at the same temperature, does not fume in air, and is insoluble in bisulphide of carbon. There are also black and white modifications of phosphorus.

Sulphur presents similar variations. There are six allotropic states known to chemists. The ordinary form as obtained by fusion at a low temperature, the native crystalline form, and the flexible or caoutchouc-like state obtained by heating to a high temperature and suddenly cooling, are the best known.

Oxygen is found in at least two allotropic states; the gas as ordinarily prepared, and ozone. The latter in density, possession of smell and oxidizing power differs greatly from ordinary oxygen.

Among the metals, we do not meet with many cases of allotropism, and these are not well marked. Manganese, uranium, titanium, and chromium are considered by Berzelius to have each two allotropic states, and in the compounds arising from each state corresponding differences exist. Iron,

as it exists in the two oxides, proto- and per-, and their salts, presents properties so different that the names ferrosium and ferricum have been given to the two forms, as if there were two metals.

Other arguments may be adduced to show that at present great doubt is thrown on the simplicity of the so-called elements. A distinguished chemist, Sir Benjamin Brodie, has recently brought forward a new method of symbolical notation in chemistry, which requires that several of the elements shall be considered as compounds. It is remarkable that chlorine, bromine, and iodine are amongst these.

One of the most surprising results of modern science is the determination of the nature of nebulae by spectrum analysis. Those which are resolvable are found to consist of incandescent solids, and in them many of the metals have been detected. In the irresolvable, we find the spectra of incandescent gas, no metals are found, and hydrogen, nitrogen, and an unknown third substance are all that are present. Can it be that these are really the primal forms of matter? It is urged that there are no intermediate nebulae, exhibiting a partial condensation, but as only a small number of the nebulae have yet been examined, these intermediate cases may yet be found.

I do not bring forward these reasonings with a view to prove that other metals can be transformed into silver and gold. Probably many other of the elements will be found to be compounds, before copper and lead are shown to be composed of gold and silver, with we know not what. From allotropism we learn, however, that the substance of matter may remain the same whilst its attributes vary, and though this has not yet been carried to the extent of forming a new species, such well marked varieties exist that the line has almost been reached at which these variations become permanent. Again, in what we may call the species of metals,

the variations are in some cases so slight that it is highly probable they are descended from one common stock.

A professor at Gottingen, Dr. Christopher Girtanner, confidently predicts that this century will see every chemist and artist making gold, and that cooking utensils will be made of silver and gold, to the great advantage of health. Whether this be so or not, we should not set bounds to science, or vain-gloriously think that we have ransacked all the stores of nature. As we look forward to the future, with the rich harvest which it is sure to yield under the tillage of the Chemist, let us not forget or scornfully despise the Alchemist. He laboured, and we reap the fruit of his labours. He made the tools with which we work, and mined in the dark to bring forth those treasures of nature of which we avail ourselves in the broad light of modern science. Whilst we may laugh at his speculations, ridicule his processes, and regret his oneness of aim, let us also do justice to the patience, devotion, and enthusiasm of the man who worked for years in vain without losing heart or hope; and do honour to those pioneers who first invaded the trackless wilderness, which now has become rich with flowers and fruits.

THIRTEENTH ORDINARY MEETING.

ROYAL INSTITUTION, 20th APRIL, 1868.

J. A. PICTON, Esq., F.S.A., VICE-PRESIDENT,
in the Chair.

Ladies were invited to attend this meeting.

Mr. BYERLEY exhibited a living specimen of one of the four-horned sub-varieties, *ovis ariis Guinensis*, or Guinea sheep, which was brought to England eighteen months ago, from Beda, 540 miles up the Niger. It was given to Mr. Fell by Masaba, King of Beda, who is about one of the most powerful potentates of Central Africa, and king over a large space of country. Masaba had seen but two of these animals, and gave one of them to Mr. F. Dr. J. E. Grey, in a note, gave the following account of the animal :—

“British Museum. My dear Sir,—The photo you have sent me represents one of the many sub-varieties of the Guinea sheep—*ovis ariis Guinensis*. Buffon figures them under the name of “Indian sheep.” They often have manes, pendent ears, and a rounded or rather arched nose ; some have very small horns ; others, like your specimen, more than one pair. They are the sheep of Western Africa. Yours is a fine specimen, in much better case, I suspect, than he used to be in Africa.—Yours truly,

“J. E. GREY.”

All the varieties are known by their long legs and slender tail. They are generally covered only with hair, but some varieties obtain wool in cold districts, which falls off in summer.

The following paper was then read :—

ON PICTURE PRINTING—CHROMO-LITHOGRAPHY.

BY MR. D. MARPLES.

WHEN, in a previous session,* I read to you a paper on Picture Printing, which was received with much interest and kindly acknowledged, my illustrations were confined almost exclusively to pictures produced by the ordinary type press or machine, or by this process upon a mezzotint ground. I submitted the opinion that the development of the art of printing at the commencement of the fifteenth century might more properly be designated a revival, than an invention; and that it arose in connexion with art, rather than with letters, its first productions being, in all probability, a series of outlines printed from wood blocks, at a rude press, to be filled in afterwards by the pencil of the artist. If this were so, it is a natural inference that the success of the experiment led to the far wider application of the art to the production of impressions from wood blocks in imitation of the black letter MSS. of the middle ages, with rude embellishments, and ultimately to the introduction and use of movable metal types.

In bringing down the history of Picture Printing to our own day, I invited your attention to the beautiful works produced by the late lamented George Baxter, who was removed from the scenes of his successful labours at a comparatively early age, and a few specimens of whose works I cannot resist the temptation of bringing before you again, on the present occasion, assured that they will not

* Vol. xix., page 80.

suffer by comparison with some of the best Chromo-lithographs now before you. Since his death, I am not aware that any one has taken up his particular line of business, which for its successful prosecution and commercial success requires not capital alone, but the thorough practical knowledge of the wood engraver, the printer, the chemist, and the colourman. To his matured experience and skill in all these respects we are doubtless indebted for the beauty and brilliancy of nearly all his works. One or two establishments in London produce works of a very pleasing character, chiefly as illustrations to the periodical literature of the day. But the greater part of these, printed from series of blocks, grained or otherwise, and marvels of cheapness, fall far below the beautiful works which preceded them.

With these few remarks, I pass on to the subject of this evening's paper, — Chromo-lithography, — and purpose to submit to you a brief history of the art of printing from stone from its commencement to the present time.

The invention of Lithography, as most of you are aware, is of comparatively recent date, and, like its kindred art, Typography, had its origin in Germany, where it was practised for some time, with but partial success, before it was introduced into this country early in the present century.

There can be no question that to Alois Senefelder the discovery is due, not as the result of study and experiment in that direction, but when seeking to adapt the lithographic stone to a very different purpose,—an attempt which, viewed not in the light of modern practice, but one might almost say of common sense, clearly indicated the spirit of the enthusiast, confident in the fertility of his own resources, though baffled at almost every step, and finding them totally inadequate to the accomplishment of his wishes, rather than

the sober judgment of a profound thinker and skilful manipulator.

The early history of Senefelder, as related by himself, while often amusing, is generally both interesting and instructive. He was born at Prague, on the 6th of November, 1771. His father was one of the performers at the Theatre Royal of Munich, apparently a man of large and liberal views, anxious to give his son such an education as would enable him to follow one of the liberal professions. Had the son been permitted to follow his own inclinations, he would certainly have embraced his father's profession, with all its uncertainties; but, in compliance with parental wishes, he devoted himself to the study of jurisprudence, seeking opportunity for gratifying his predilections for the stage by occasionally performing at small or private theatres, and occupying his leisure in the composition of some trifling dramatic publication. In this way he wrote what he terms a "little comedy," in the year 1789, which was received by his numerous friends with such applause that he was induced to send it to the press, and had the good fortune to clear fifty florins from the sale of it, after defraying the expenses of printing.

With the sanguine temperament of an enthusiast, and moving, as it may be inferred he did, in good society, it is not easy to say what success might have attended his legal studies if he had been able to prosecute them. But the death of his father brought them to a sudden and unexpected close, and threw him upon his own resources before his mind was sufficiently imbued with legal lore to enable him to make his way in the world in the pursuits his father had chosen for him.

As was to be expected, and the opportunity occurring, his first efforts for personal support were in the direction of his early tastes; but after two years of misery and disappoint-

ment, at several theatres, his enthusiasm cooled, and he forsook the unpromising profession again to try his fortune as a dramatic author. Here again he was unsuccessful, the sale of his next publication, a drama, which could not be got ready for the Easter book-fair at Leipzig, producing scarcely sufficient to pay the expenses of printing it. In order to accelerate the publication of his drama, he had passed more than "one whole day in the printing-office," and naïvely states that he made himself acquainted with the whole process of printing, and thought it so easy that he wished for nothing more than to possess a small printing press, in order that he might become the composer, printer, and publisher of his own productions !

A new direction had been given to his thoughts—new ideas crowded upon his mind ; plan succeeded plan, and experiment followed experiment, but with the same disappointing results. His first idea was to engrave letters on steel, stamp them in forms of hard wood as matrices, and thus produce stereo plates, from which impressions could be taken ; but apparently without any well-defined idea as to how his invention could be applied to improve his resources, and, one would suppose, in ignorance of the fact, though he admits afterwards that he was not ignorant of it, that stereo casts had been taken from metal types, and various works printed from them, long before, both on the Continent and in England. This experiment had to be abandoned, solely because the purchase of a small stock of type, which he then supposed was all that he required, was too much for his limited resources.

Senefelder's next experiment was no other than to learn to imitate the printed characters very closely in an inverted sense, to write these with an elastic pen on a copper plate, to bite them in with an acid, and then to take an impression from them ; in other words, to re-invent the engraver's art,

which had been practised centuries before. The heavy expense of procuring, and the labour involved in grinding and polishing, these copper plates, and the unsuitableness of tin plates, which he had tried as a substitute for copper, brought this plan to a profitless conclusion.

At this period his attention was directed to a fine piece of polished Kellheim stone, which he had purchased as a slab on which to grind his colours. His experiments on the stone, which he commenced at once, and with his usual ardour, led him to conclude that he had found in it a substitute for copper; and his hope of success in the use of it increased with the discovery that he could, in regard to writing, accomplish his object better and more distinctly on the stone than on the copper.

It is not easy to find a way out of the ambiguities of the narrative of his experiments at this time, or to suppose that he expected to find in the stones anything but a cheap substitute for copper plates, to which, in consequence of the same difficulty of grinding and polishing the stones, which he had encountered, and to some extent overcome, in the preparation of his copper plates, he candidly admits he should in all probability have returned, though in impaired circumstances. One result, however, of his experiments upon the stone was to recall to his recollection a circumstance that had arrested his attention some years before, and which at the time he could not explain. To the recollection of this fact he attributes the invention of the present chemical lithography.

This then, brings down the narrative to the period whence the origin of the art of lithography may be dated. Senefelder tells us that he had just succeeded in his little laboratory in polishing a stone which he intended to cover with etching ground, in order to continue his exercise in writing backwards, when his mother entered the room, and

desired him to write her a bill for the washerwoman, who was waiting for the family linen. Having neither paper nor ordinary writing ink at hand, and nobody in the house to send for a supply, he wrote the particulars on the stone, with the ink he had prepared,—the composition of which, consisting of wax, soap and lamp black, he minutely describes,—intending to copy it on paper at his leisure. Some time afterwards, when about to obliterate the writing from the stone, he says that the idea all at once struck him to try what the effect of writing with his prepared ink upon the stone would be, if he were to fill in the stone with aqua fortis (thus producing the writing in relief), and whether it might not be possible to apply the ordinary printer's ink to it, and produce impressions as from a wood block. The result of his experiment with the acid was that he found the writing elevated about the 120th part of an inch above the rest of the stone, and with laudable diligence he set himself to discover the best mode of applying the ink, and procuring copies by vertical pressure. Further trials, he states, encouraged his perseverance, and were of the greatest moment to him, since this method of printing was obviously an entirely new invention, for which a patent might be obtained, if not assistance from the Government, which had already helped and encouraged inventions deemed by him of far less importance than his own.

From this period Senefelder appears to have practised his invention in his own country with his wonted ardour, and in some places with success. The great secrecy and jealousy with which the process had to be guarded, however, retarded its progress, and prevented his reaping from the discovery the fruits which he anticipated. Again, failure succeeded failure, entailing losses beyond his disposition or his power to sustain. Little surprise need be felt, therefore, that the ingenious inventor, even at this period,

was often disposed to relinquish his enterprise. Indeed it required all the encouragements of his friends generally, and the persuasions of one gentleman of influence in particular, the Director of the Academy of Arts and Sciences at Munich, to whom he had submitted his invention, to induce him to persevere. And his perseverance was at length crowned with such a measure of success as to warrant the hope that both fame and fortune awaited him.

The first application of his invention at this period was made in connexion with Mr. Gleissner, a musician of the Elector's band, who, he learnt, was about to publish some pieces of sacred music. The specimens of music and other printing, which were submitted to the musician and his wife, obtained their highest approbation, and their proposal to undertake the publication of the music on their joint account was promptly accepted. Twelve songs composed by Mr. Gleissner were copied by Mr. Senefelder on the stone, and, with the assistance of one printer, one hundred and twenty copies were produced in less than a fortnight, most satisfactorily, both in an artistic and pecuniary point of view. Through the influence of Gleissner's patron, Count Törting, a copy of this their first work was presented to the Elector, Charles Theodore, from whom they received a present of one hundred florins, with the promise of an exclusive privilege to the inventor.

Promising, however, as this beginning was (in the year 1796), the reception of a memoir of the invention by the Electoral Academy of Sciences was most disappointing. Instead of an honourable mention of it in their Transactions, which the inventor not unreasonably anticipated, he received a present of a paltry sum of money, with the intimation that the memoir had been very favourably received. A rude lever press, which the inventor had stated did not cost more than six florins, had enabled him to produce the specimens

submitted to the Society, and its Vice-president hoped that “a double compensation (twelve florins) would satisfy his expectations!” He had naturally looked for a very different result, and supposed that these guardians of science and art, whose duty it was to investigate the value of every invention, would have approved this, and submitted it to the notice of Government.

In further experiments, extending over a period of two years, Senefelder made but little progress. New and larger presses were made, and found not to answer. Engagements to print new works could not be fulfilled, and in consequence the new art lost almost all its credit and reputation; the privilege promised by the Elector when applied for was refused, and indeed could never be obtained; and not only were the inventor's little gains consumed, but debts were incurred, and the ridicule of those whom the success of his first efforts had rendered jealous was the bitter fruit of all his laborious endeavours to promote an art from which he had cherished such high expectations.

To a man of less sanguine temperament than Senefelder, there would have appeared at this time, and under these circumstances, but little inducement to prosecute his experiments. But his confidence was great; necessity led him on; and his next great improvement was considerably in advance of all the rest. Being employed to write a prayer-book on stone in the common current hand, he found so much difficulty in producing the letters reversed that he was led to trace the whole page with a black lead pencil on paper, to wet the paper, place it on the stone, and thus, by strong pressure, produce the page reversed. The experiment was not without a measure of success, but the impression was necessarily slight, and easily rubbed off.

To find a substitute for the black lead further experiments

were tried, for a time without any satisfactory results. At length, however, he succeeded in preparing a composition, with which, diluted with water, he could trace the music or letters on paper, and transfer them to the stone. This was a step considerably in advance, as it led to two ideas of great practical importance—1, that it might be possible to compose an ink which should possess the property of transferring itself to the stone, so that the drawing might be complete, and, 2, that a paper might be so prepared as that the ink with which the writing or drawing was executed on its surface might be discharged upon the stone without its retaining any part of it. To the carrying out of these two ideas his experiments were now directed. With respect to one of them, a suitable ink, he says, “I can safely assert that this circumstance alone cost me several thousand different experiments, but I was sufficiently rewarded by the final attainment of my object. Besides, these experiments led me to the discovery of the present Chemical Lithography. . . . In less than three days after my first idea, I produced as perfect and clear impressions as any that have since been obtained. Thus the new art had, in its very origin, arrived at the highest degree of perfection as to the principle, and good and experienced artists were only wanting to shew it in all the varieties of application.”

From this time it would appear that the art spread with astonishing rapidity over all Europe and other parts of the world, the only obstacle to its success arising, in the opinion of its inventor, from the imperfect instructions of ignorant artists and pretended adepts, the art of printing from stone depending entirely on chemical, and not on mechanical principles. To the general desire for a history of the art, and instructions for carrying it out, though sustained by the urgent recommendations of his friends, Senefelder for a long

time declined to respond. If sometimes disposed to accede to the general desire, he delayed, and was often deterred from his purpose, his indefatigable mind suggesting to him new improvements, calculated to render the art more perfect. Thus he was led to closer study and fresh experiments, to the complete absorption of his time and attention; so that a collection of specimens, produced in 1809, as illustrations of a work he intended to prepare, but never completed, if indeed it was ever commenced, remained unfinished, and another work, which for two years had been announced for publication by a gentleman of Offenbach, in conjunction with Senefelder, never made its appearance.

At length an inducement sufficiently strong prevailed with the inventor to attempt compliance with the general desire, and to do an act of simple justice to himself, by claiming the undoubted honour of the invention. His generous friend and patron, of whom mention has already been made, anxious to remove all uncertainty, and to prepare the way for a critical history of the new art, while it was still possible to ascertain the truth, directed the attention of M. Senefelder to certain assertions in the public prints—that Lithography had been invented in Paris, or in London; and that even in Munich, the honour of the invention would have to be shared with some one else. He also procured the insertion in a journal chiefly devoted to records of the history of industry and art, of several letters, on the subject of the newly discovered art, challenging public attention, and the correction of any of his statements which might be found inaccurate. Copies of these letters were forwarded to his friend, then at Vienna, whom he strongly urged no longer to delay the publication of a minute history of his invention, accompanied with a complete course of instructions in all its branches and modes of application. Still further to encourage the inventor, disheartened by his many unsucces-

ful undertakings, and to revive his drooping spirits, he informed him that he had introduced the subject, with particulars of the astonishing progress already made, to the notice of the Sovereign, whose patronage was promised, and to whom ultimately Senefelder's work was with permission dedicated. Indeed both the King and the Queen honoured the art with their distinguished attention, intending thereby to animate the zeal and activity of its inventor.

As might have been anticipated, Senefelder no longer hesitated, but employed his leisure hours in preparing a history of his invention, and an unreserved exposition of its different branches, enriching his account with accompanying specimens, which he ultimately published; thus presenting to the public what his distinguished eulogist does not hesitate to pronounce "one of the most interesting productions of the present time."

The work which he published is divided into two parts—I. The history of the invention, with particulars of its different processes. And II. a description of the manner of writing, drawing, etching, transferring, preparing, and printing from the stone. The reception of this work was flattering.

It may not be out of place here to state, that the earliest works printed from what are called "flat colour stones," notices of which have come under my observation, are the following—one, "Borders for Prayer Books," published at Munich by Strixner in 1808, and another, by the same publisher, "Les Œuvres Lithographique," brought out under the direction of Senefelder and Baron Aretin, with the date 1810. It was not until 1822 that the first application of colour printing on a large scale was made at Munich, in a work containing pictures of birds, monkeys, and turtles. An odd combination, certainly!

In 1819, the late Rudolf Ackermann, at that time a print-seller and publisher of some eminence, carrying on business in the Strand, in London, published a translation of Senefelder's German work, in a quarto volume, with the following title: "A complete course of Lithography, containing clear and explicit instructions in all the different branches of that Art; accompanied by illustrative specimens of Drawings. To which is prefixed a History of Lithography, from its origin to the present time. By Alois Senefelder, Inventor of the Art of Lithography and Chemical Printing."

How highly the publisher estimated the importance of the invention may be gathered from his advertisement prefixed to the volume. He says—"In the first place, the art itself appeared to me of the highest utility. By means of it the Painter, the Sculptor, and the Architect are enabled to hand down to posterity as many *fac-similes* of their original sketches as they please. What a wide and beneficial field is here opened to the living artist, and to future generations! The collector is enabled to multiply his originals, and the amateur the fruits of his leisure hours. The portrait painter can gratify his patrons by supplying him with as many copies as he wishes to have of a successful likeness. Men in office can obtain copies of the most important despatches or documents, without a moment's delay, and without the necessity of confiding in the fidelity of secretaries or clerks; the merchant and the man of business, to whom time is often of the most vital importance, can, in an instant, preserve what copies they may want of their accounts and tables. In short, there is scarcely any department of art or business, in which Lithography will not be found of the most extensive utility." Surely the English publisher had caught something of the spirit of the German enthusiast! For more than two years, he tells us,

he had availed himself of the knowledge of the art in the publication of various works, struggling indeed with difficulties, and frequently embarrassed from the want of definite instruction on essential points. Finding that the heavy customs duties payable on each separate print precluded the gratification of the author's wish that purchasers of the English translation of his work should receive impressions from the original stones, the illustrations which the volume contains were executed by or under the publisher's directions in London. That these illustrations, admirable as they were, would soon be surpassed, might naturally be expected ; but that the art had accomplished so much within so short a time can be best appreciated by those who are familiar with its practical difficulties, which frequently test alike the patience and the skill of the best workmen even at the present day.

One of the illustrations of Mr. Ackermann's interesting volume forms a quarto page, the dedication and the poem being written in a bold hand, very easily read, and the appended remarks in a smaller hand, very neat, the signature being in all probability the publisher's ordinary one, written with the prepared ink and transferred to the stone. It is as follows :—

“ To

“ M. ALOIS SENEFELDER, Inventor of the Art of Lithography
and Chemical Printing.

“ E'er Art is to its full perfection brought,
What strength of mind, what energy of thought,
What bold Invention, what expansive power
Blend in the Labours of the pregnant hour.
How much, then, from a grateful Age is due
To those who toil, Senefelder, like you !
How great your boast, who, by your matchless skill,
Can quicken Labour's progress at your will ;
Can, by your chymic, multiplying powers,
Convey to Life so many added hours ;—

And, since your potent Art began to live,
 One Hour creates what days were wont to give.
 Bavaria, happy to enroll your name
 Among her fav'rite sons, partakes your fame;
 While her sage Sov'reign bids that fame increase,
 And gives thee Honour, Competence, * and Peace.

"The above lines are a Transfer, composed by and in the Hand Writing of, my Friend the Author of *Dr. Syntax*. — London, February 25th, 1819,

"R. ACKERMANN."

This translation of Senefelder's volume, published by Ackermann, was succeeded by "*A Manual of Lithography*," without date, and translated from the French work of M. Raucourt, published by Hullmandel, for which the silver medal of the Society of Arts was granted. The author remarks that the only style in which the new art has a decided superiority is that of chalk drawing. Certain of the author's observations on the imitation of wood engraving by the new art, could only refer to some of the ruder works of an early period; nothing at all approaching the finer and more delicate productions of the present day could be produced from the stone even now.

To this *Manual of Lithography* succeeded a work with the names both of Hullmandel and of Ackermann on the title page as the publishers. The illustrations of this volume were far in advance of those of Senefelder's work, and its instructions were of great practical value. It was published in 1824, in imperial octavo, under this title — "*The Art of Drawing on Stone*, giving a full explanation of the various styles, of the different methods to be employed to ensure success, and of the modes of correcting, as well as of the several causes of failure, by C. Hull-

* The "competence" here referred to, which seems to have satisfied the good man, and to have "raised him above the necessity of daily toil," was a government appointment, producing £110 per annum.

mandel." The title page is a specimen of ornamental writing, very neatly executed, with a vignette above the imprint in the chalk style, about an inch and a half square; a favourable specimen of what could then be accomplished on so small a scale. There are nineteen plates, illustrative of the various processes referred to in the title page. Two of the plates illustrate the process of printing with two stones; the first of the two gives the finished picture, the other, the tint stone, shews how the whites are scraped out, the effect of a half tint being produced by the scratching of fine lines close to one another. Another illustration is a transfer from an engraving, beautifully executed by machinery on a copper plate for a work then recently published, entitled "A practical view of an invention for better protecting Bank Notes from forgery." A second illustration has transfers from two plates—the one a slightly reduced copy of a part of "Death's Door," one of the twelve masterly etchings by Schiavonetti, from drawings by William Blake, illustrative of Blair's poem of "The Grave;" the other from a small line-engraving illustration for Don Quixotte. The author apologetically observes that "the specimens given are from copper plates from which many impressions had already been taken, which were consequently worn out." It is but justice to state that the transfers are quite equal to any which could be produced by the same method at the present day. The author is indeed fully justified in saying—"Let the early productions, given four years back, be compared with what is now done, and I am certain that every impartial judge will say that the art has made gigantic strides in that short space; and that, far from having its bounds marked out, the progress that has already been made is such as to astonish, and clearly shew that a still greater degree of perfection will, and must be attained." He admits that Lithography had made greater progress in France than in

any other country, and particularly within the two years preceding the publication of his work in 1824; he concedes the great superiority of the French as far as concerns figures and heads, but thinks every unprejudiced observer will admit that in landscape we can produce finer specimens than they. I am free to confess that some of Hullmandel's works which I have seen scarcely come up to the standard of excellence which in his opinion the art had attained. A list of the Lithographic works already printed by him, and published by Ackermann, is given at the end of the volume, and serves to indicate the energy and zeal which all the new art had been cultivated, and, it may be fairly inferred, the willingness of the public to encourage it. They are fifty-five in number, some of them extending to four, six, and even ten parts; so that the retail price of a single copy of the whole series would be somewhat over fifty pounds.

The extensive application of Lithographic printing to purposes connected with the various branches of trade and commerce forms no part of my subject, otherwise it might be interesting to dwell upon it for a while. Let it suffice to say that, not merely in the great seats of manufacture, commerce and trade, but in almost every town of any size throughout the United Kingdom, the lithographic press is found side by side with the type press and printing machine, contributing extensively to the general good. It is not to its contributions to mercantile and manufacturing convenience, important as in many respects they doubtless are, but to its more attractive contributions to the growing taste of the age, which it is largely contributing its part to foster, to which your attention is invited this evening. In this connexion it has taken an important place; and not only have the affluent adorned their dwellings, or enriched their portfolios, with its beautiful productions, but the great middle classes in all our large towns have largely purchased

them. And I need hardly say that I anticipate the chief interest of my paper this evening will arise less from its details than from the specimens now exhibited in illustration of it.

Chromo-lithography is the art of printing pictures from stone. The most difficult branch of it,—that which is generally referred to when “Chromos” are spoken of,—is the art of reproducing *fac similes* of oil paintings or water-colour drawings, so closely resembling the original picture, with all its delicate gradations of tint and shade, its spirit and tone, that an unpractised eye would find considerable difficulty in distinguishing the original from the copy. Various pictures will require from the commencement various modes of treatment. The first printing may give only a very faint resemblance to the completed picture—rather a shadow than an outline; the next printing will give all the shades of another colour, and the process has to be repeated, in some instances as often as thirty times; thus giving to the picture not simply one colour in its different shades, but a hundred tints of colour, multiplied by combinations produced in the process of printing one colour over preceding ones. The mere drawing of the different parts of a picture on so many stones involves an amount of time and skill incredible to one who is not familiar with the process. A more difficult task, and one needing greater skill, is in the arrangement of the colours, which requires the knowledge of an artist combined with the printer’s practical familiarity with mechanical details. But the most difficult part of the process remains to be stated. It is what the workman designates registering, and is that part of his work which consists in so precisely placing upon the stone the sheet he is printing that it shall receive the impression where it ought to be given, because the difference

of a hair's breadth would spoil the picture by hopelessly mixing the colours.

In the reproduction of copies of water-colour drawings, passing the finished print over a grained stone, without colour, gives it the appearance of being printed on a rough paper, similar to that commonly used by the artist in his original drawing. By a similar process, a resemblance to canvas may be given to pictures reproduced from a painting in oil. In the former case the result is pleasing—the effect of the picture is heightened by it; in the latter the advantage is questionable.

In common with other modern discoveries which have arrested or attracted public attention, Chromo-lithography has had its detractors, as well as its partisans, both carrying out their feelings to an unreasonable length. Some claim for it now, as was claimed for lithography in its rudimentary state, impossible capabilities; while others disparagingly speak of it as a mere handicraft, which no skill of execution can elevate to the dignity of an art. A glance at the specimens submitted this evening will satisfy any unprejudiced mind, notwithstanding, that it is capable of producing charming pictures, immeasurably superior to the coloured engravings sometimes exhibited side by side with them in the windows of our print-sellers' shops.

The infancy of Chromo-lithography may fairly be considered as having passed by rapid strides into adolescence; while the productions of late years, and especially of the last few months, indicate the attainment of a vigorous manhood, whose works can hardly be surpassed; to which the future can scarcely do more than give greater variety, and thus be the means of diffusing a love of art, not merely among the middle and higher classes of society, but in the community generally.

In this branch of artistic printing, as in that treated of in

my former paper, a wide difference prevails, both as to the variety of style, and the degree of excellence attained. In the application of the art to the reproduction of chalk drawings, the effect of the picture is often heightened, and rendered more attractive to the eye, by the addition of one or more tints, or by one tint with the lights stopped out in the tint stone; while in the production of many pictures, six or eight stones may suffice to bring out the artist's idea. In executing the more elaborate works, from twenty to thirty stones are requisite. And it may be stated that in many of these beautiful productions any brilliancy which the artist may give to his original drawing may be equalled, and if necessary exceeded, in the printed copies. For this statement I have the authority of the Messrs. Audsley, of this town, whose elaborate work, "The Sermon on the Mount," is now before me. The frontispiece of this exquisite volume is a fair specimen of what the art could produce at the time of its publication in 1861; while the variety of the ornamentation, and the admirable register of the illuminated borders, are somewhat marvellous.

Among the productions of the Chromo-lithographic press, mention must be made of the work published under the title of "Master Pieces of Industry, Art and Sculpture, at the International Exhibition of 1862." The selection of the pictures and the description of them was entrusted to Mr. J. B. Waring, the Architect, and they were chromo-lithographed by and under the direction of Messrs. W. T. Tymms, A. Warren and G. Macculloch, from photographs supplied by the London Photographic and Stereoscopic Company, taken exclusively for the work by Mr. Stephen Thompson. This work, published by Day & Son, in whose office it was executed, consists of three volumes, each containing a hundred plates, and giving upwards of a thousand subjects. Some idea of the extent of the under-

taking may be derived from the following statistics, copied from the introduction. The time requisite to produce the three hundred plates in chromo-lithography, by one artist, would have been at least forty-two years; and the printing of the edition of the plates in their numerous colours would have occupied any one printer, working ordinary hours, one hundred and four years. Nearly three thousand lithographic stones were used for the work, and about forty tons weight of the finest quality of paper consumed. Beautiful as many of the pictures are, their chief merit is in conveying a just idea of the works of art selected for portraiture. If the statement be literally true, that three thousand stones were required to produce these illustrations, it follows that an average of ten printings would be required for each. But as many required only two or three, it follows that a large number must have required more than ten printings. There need be no hesitation in stating that the execution of the pictorial parts of these three volumes is somewhat in advance of that of the two similar volumes published in connexion with the Exhibition of 1851.

In the year 1848, a society was established in London, under the title of the Arundel Society, whose object was stated to be "to illustrate the history and monuments of art, by issuing publications of any nature and form which might be found convenient, and by forming a collection of copies, tracings, and other artistic records of important works, especially such as are not generally known." The Society consists of three classes of members—1, Subscribers; 2, Honorary Subscribers, the number of these limited to fifteen hundred; 3, Associates. Prior to 1865, the number of Subscribers was limited to fifteen hundred, the names of the Associates being introduced into the list of Subscribers as vacancies occurred. But in that year the increase in the number of Associates was so great (amounting to nearly two hundred and fifty),

that the Council convened a special meeting early in the year, which determined to recommend to the next annual meeting the enlargement of the basis of the Society's operations, by extending the advantages of subscription to a new class of members. Acting on the wishes expressed at the special meeting, the Council opened a list for Second Subscribers, in which, at the publication of the report in June, more than seven hundred persons had enrolled themselves. Accepting this as sufficient evidence of the support which the Society and the public were prepared to give to the new arrangement, the Council decided on two works, as the "Second Publications" for 1867, both of them chromo-lithographs, to be executed by Messrs Storch & Kramer, of Vienna, from Italian frescoes—one, from the subject of *Zacharias naming his son John*; the other from the allegorical figure of *Poetry*, by Raffaele, in one of the Stanzi of the Vatican. These, the Council intimate, will shew the value the subscribers may expect for their guinea. A glance at them as they are now exhibited will attest their great excellence, and the wonderful skill of those to whom the Society commits the execution of its various works. In the list of the Second Subscribers, published in September last, which had then considerably increased, appears the Liverpool Free Public Library.

That the prints issued to the second subscribers are not inferior to those which first subscribers receive, will be seen on comparing them. The two which have been issued to first subscribers for 1867 are Chromo-lithographs by the same printers, from drawings by Signor Mariannecci—one from the fresco by Ghirlandajo, in S. Maria Novello at Florence, representing the *Preaching of John the Baptist*, the other from the *Ecstasy of St. Catherine*, a fresco by Razzi, in San Domenice at Siena. In addition to these two Chromo-lithographs, first subscribers receive a line engraving

by Professor Gruner, from the tapestry designed by Raffaello, now in the Vatican Gallery, and representing the *Martyrdom of St. Stephen*.

Perhaps it ought to be stated that an entrance contribution of a guinea must be paid to the copying fund by every new subscriber.

The number of a trade publication called *The Bookseller*, for December 10, 1864, directs the attention of its readers to a work published by the Messrs. Didot, of Paris. It contains six chromos, printed by M. Kellerhoven, of that city, which, so far as the execution is concerned, may challenge comparison with any of the publications of the Arundel Society. Some idea of the excellence of these prints may be formed from the specimen submitted this evening, *The Descent from the Cross*, from the picture by Quentin Matsys, now in the museum at Antwerp. Whatever may be thought of the conception of the artist, the form of the picture, the disposition and arrangement of the figures, or the somewhat unpleasing, not to say forbidding, appearance of the principal one, there can be but one opinion as to the skill of the printer, when it is considered that there must have been from twenty to five-and-twenty printings, each from a separate stone giving a different colour.

I regret that this print was forwarded to me from Paris instead of a far more pleasing one, also a *Descent from the Cross*, by Frae Angelice de Fiesole, now in the museum at Florence, technically the most difficult of execution of the whole. It is a tryptich, being partially divided into three compartments. The centre one contains the cross, with the dead body of Christ, which is being carefully handed down. In this there are no fewer than twenty large figures, besides a background of angels over two compartments; and the writer of the paragraph states that in this picture, and in this alone, and only by the aid of a magnifying glass, had

the first Chromo-printer in London succeeded in discovering a failure. His practised eye detected, in one corner of the print, a deviation to the width of a line on the red tiles. Surely no higher praise could be awarded to the skill and attention of the printer than this. The price, too, at which these beautiful pictures may be purchased is surprising. Each separate print is sold for thirty francs, and the price of the six, bound, together with two or more pages of text descriptive of each plate, is but two hundred francs.

I submit two specimens of a work recently published in London—"Jerusalem, Bethlehem, and the Holy Places." It is completed in ten parts, each containing three prints, *fac-similes* of the beautiful water-colour drawings, painted on the spot, by Carl Werner, which were exhibited in Liverpool some three years ago. The drawings represent the most conspicuous "Holy Places" in and about Jerusalem and Bethlehem; and, through the intervention of the Prussian Consul, one or two places which had never before been represented. As, for instance, the "House of Pilate," and the interior of the "Mosque of Omar," with the large rock on which the Mussulmans believe Mahomet was raised to heaven, and which afterwards returned and placed itself on the old site. In the representation of rocky surfaces, and masses of stone work, with elaborate architectural detail, the artist's method of treatment of colour is quite his own. The brilliancy of his tints, their delicate blending, and the subtle management of light and shade, have tested the mechanical skill of the Messrs. Hanhart, by whom the views have been printed.

My attention has been directed to a series of Chromolithographs published in Boston, in the United States, but not in time to enable me to submit specimens. From a few small ones illustrative of natural history, about the size of an ordinary *carte de visite*, which I have seen, I cannot doubt

that the printer has attained a high degree of excellence; while from the vast variety advertised for sale, the conclusion may justly be arrived at that he has received corresponding encouragement.

The beautiful little Christmas and New Year's presentation cards deserve a passing notice. Many of them are gems of the art, from France and Germany, whence they are imported by London dealers in large quantities. Without positively deciding that some of the new ones brought out at the close of last year are inferior in execution to those of former years, many of which hold their place in public esteem, the fear may be expressed that a desire to compete with the best ones, and to produce them at a cheaper rate, has, in some instances at least, led to the introduction of an article produced with less labour.

In requesting the Society's acceptance of a copy of "Modern Liverpool," a work printed in my own office, for which our President of last session did me the honour to write the introduction and the descriptive letter-press, I may be pardoned the expression of a hope that, as the first work of the kind printed in Liverpool, if not in the provinces, it may not be deemed unworthy of a place among the artistic works which the Society already possesses.

Among the specimens of early Lithography submitted to the Society this evening, not the least interesting are some which were produced in Liverpool, more than forty years ago, by two gifted young men—Samuel and George Nicholson, the sons of equally gifted parents—a family of whom it is more than probable very few present have ever heard.

Among my earliest business acquaintances in Liverpool, were these two youths, whom I employed to engrave for me

a few wood blocks ; and being in possession of some deeply, almost painfully, interesting particulars of the whole family, I am desirous of placing them on record in connection with my paper on Picture Printing, if the Council should deem it worthy of a place in the Society's Proceedings.

In the year 1806, the parents of the Nicholsons had a flourishing school for young ladies in Manchester, but the failing health of the father obliged them to relinquish it. He subsequently attempted to establish a new business as a bookseller and manufacturer of marbled paper ; but this also he was obliged to relinquish, less however from the failure of his plans than from his having unfortunately signed a bond in favour of a friend, which entailed upon him heavy pecuniary liabilities and loss.

This led to the removal of the family, which at this time consisted of the father and mother, two sons, and four daughters, and the mother's unmarried sister, a woman of sound sense and great practical wisdom ; and Liverpool was chosen as the scene of the future efforts of its head to provide for the wants of his family. Hither they came in the year 1810. With the suggestive aid of his sister-in-law, the father discovered an ingenious mode of producing stereoplates from type. This he sought to put in practice, in the hope of retrieving his fallen fortunes. With great energy and untiring diligence he addressed himself to his new occupation, and laboured beyond his strength in carrying out his discovery, having secured the patronage of more than one publisher, for whom he cast the plates of several works. Gifted with a powerful intellect, and distinguished by the strictest integrity, his expectations were sanguine ; but his new business required a somewhat large plant and expensive materials, which had to be obtained principally on credit, and, his returns falling below his expectations, he found himself so largely involved in pecuniary difficulties

that his health became enfeebled, and in the year 1814 he sank into an early grave.

To his two sons, of the ages of thirteen and twelve respectively, who seemed to have inherited their father's energy of character and self reliance, it was left to struggle with the difficulties which had fatally undermined their father's health. A friend of the family, a Printer in Halifax, having given them a commission to cast the stereotype plates of a quarto bible, these two boys might be seen in their foundry, before a glowing furnace, throughout the day and often far into the night, amply repaid for their exhaustive labour if success might but crown their efforts. The wonder is that, at their tender age, they did not fall victims to their prolonged efforts to contribute something towards the family expenses, and follow their father to the grave.

The aunt gathering together a few pupils, and the mother struggling bravely in the battle of life, and with small means keeping the house and children in admirable order, they were often, notwithstanding, in great straits for their own maintenance, and to satisfy the creditors of the departed head of the family, when a new trial came upon them, intensifying their pecuniary difficulties.

The father, himself a self-taught engraver on wood, had taught the art, along with the elements of drawing, to his two sons. One or two of their early specimens are in my possession, and have in them the promise of great excellence, had their lives been spared to cultivate the art. It was at this period of their history that the new trial to which I have just alluded occurred.

A designing man, employed as it was afterwards discovered by a large blacking-making firm in London, engaged them to engrave a label, a *fac simile* of one submitted to them. Unconsciously, they fell into the trap thus laid for them, without the slightest suspicion that they were doing

wrong, and exposing themselves to a cruel persecution. Yet so it was; and the first intimation of the fact that they had transgressed the law was received in the shape of an injunction from the Court of Chancery. Being minors when the assumed offence was committed, no further steps could be taken against them then. In the year 1822, the elder brother attained his majority, when, with a refinement of cruelty which admits of no extenuation, the young man was summoned to London—had an interview with the senior partner of the aggrieved firm—failed to convince him that he had no guilty knowledge in the transaction, and only succeeded in staying further proceedings by coming under an obligation to pay £150 as damages, and £50 as costs; which sums, in four equal payments, were ultimately discharged, at a cost of suffering which may be readily conceived.

But if the year 1822 was thus marked by calamity, it was also distinguished in other respects. By this time two of the sisters had become competent to engage in the work of tuition, and had obtained employment; thus contributing their portion to the household expenses. The mother, a woman of refined taste and artistic genius, employed herself indefatigably in copying large pictures in needle-work, with wool. These were afterwards exhibited publicly, not unfrequently, indeed, rather diminishing than contributing to the available means of the family. In the month of May of the same year (1822), Mrs. Nicholson produced her *chef d'œuvre*, a needle-work copy of Rembrandt's celebrated picture of Belshazzar's Feast, in the possession of the late Lord Derby, which his Lordship gave her permission to copy. This was exhibited in London in the course of the year; and so admirably was her task executed, that the Society of Arts awarded to Mrs. Nicholson their gold Isis medal. From July to December in the same year, this beautiful

production, and other similar ones, were exhibited in Liverpool, the proprietors of the Lyceum Library having generously granted the use of their large committee room for the purpose.

While the elder brother, Samuel, had become an expert engraver on wood, he had also successfully cultivated his taste for the Fine Arts, and in April 1821 was awarded the large silver medal of the Society of Arts for a large pencil drawing—a Composition. In the same year, also, the younger brother, George, by close attention and careful study from nature, especially in the varied character of the foliage of trees, had qualified himself to teach the art of pencil drawing to others. And it was at once an evidence of his skill and high moral character, honourable alike to patron and teacher, that among his first pupils were the female branches of the noble family at Knowsley Hall, the late Countess of Wilton, then Lady Mary Stanley, being one. Nor was it less honourable than gratifying to the rising artist that the silver Isis medal of the Society of Arts was awarded to him in this year, for a pencil drawing of Stirling Castle. This drawing was purchased from the artist by Mr., afterwards Sir Francis Chantrey; and it is a satisfactory proof of its excellence that the celebrated sculptor gave ten pounds for it. Their earliest work was published in 1821, under the title of “Twenty-six Lithographic Drawings—Views in the Vicinity of Liverpool.”* In the Preface to this work, the artists say—“The many accidents, chemical phenomena, and unaccountable failures incident to lithographic

* These views were—Birkenhead Priory, Hale Hut, Childwall Church, Toxteth Park, Lydiat Abbey, Dingle (Toxteth Park), Knowsley Hall, Ormskirk, Runcorn, Halton Castle, Speke Hall, Green-bank, Wavertree, Speke Hall (West Entrance), Bebington Church, Gate to St. Nicholas' Church, Otterspool, Mill (St. James's), Huyton Church, Eastham Church, Knowsley Hall (South View), Hooton Hall, Woolton Ice-House, Hale Hall, Cottage in Hale Wood, Croxteth Hall, and the Frontispiece, a composition.

printing have very much retarded the appearance of our present work, and have rendered it, upon the whole, less perfect than our first anticipations led us to expect." But they give no clue to the way in which the Drawings were put upon the stone, whether directly or by the use of transfer paper. If the latter, they were in all probability produced by the pen, their appearance being that of pen and ink drawings, somewhat tame, indeed, when compared with etchings from copper, which they resemble more nearly than their subsequent works, all of which appear to be in the chalk style.

In the year 1824, the Messrs. Nicholson published a quarto volume—"Plâs Newydd, and Vale Crucis Abbey, correctly drawn from nature, and engraved, by S. & G. Nicholson." These are etchings, six in number; and there are three beautiful specimens of wood engraving executed by them—one on the cover of the work, another on the title page, and the third, a view of "Llangollen Church, as seen through a compartment (a circular one) of the library window," exquisitely engraved.

In January of the following year, 1825, an event of the most painful character occurred, which, to use the language of one of the surviving sisters, "deprived the family of its head—a most generous and loving brother—a most noble heart—a most valuable earthly friend. In the family journal, the sad trial is recorded by his mother and brother, in words which stir the heart, and bring tears to the eyes." In defending his mother from the fierce attack of a rabid dog, he himself was bitten, and died shortly afterwards in frightful sufferings from hydrophobia.

As may be supposed, the sad event produced deep depression upon the spirits of the survivors, especially upon the remaining brother, thus awfully deprived of a dear companion and a loving and faithful friend. But the loss the family

had again sustained only tended to bind the hearts of its surviving members more closely together. The elastic spirit of the brother rose again, and he addressed himself to labour with redoubled ardour. Taking his youngest sister under his tutelage and companionship, he taught her flower drawing, associated her with him in his engagements as a teacher, and together they won their way to public esteem and confidence, alike by their high morality and their unceasing industry.

Having liquidated all his father's liabilities, though sometimes compelled with great reluctance to leave some of his own unpaid, George had the fair prospect of discharging these also, and of winning a respectable competency for himself and those doubly dear to him,—for whose sake he had remained unmarried,—when, in the year 1838, the combined effects of an attack of cholera and influenza, producing consumption, carried him rapidly to the grave, beloved and lamented by a wide circle of admiring friends. Two of the sisters still survive; the water-colour drawings by the younger (who is also the youngest member of the family) are highly prized.

It was during the most critical period of the life of these gifted young men, and a short time before the death of the elder brother, that the views in Carnarvonshire were executed. They were published under the patronage of the two titled ladies, who for so many years, by the singularity of their costume and other eccentricities, attracted the attention of visitors to North Wales—the Lady Eleanor Butler and the Hon. Miss Ponsonby, of Plâs Newydd, near Llangollen. The sketches for this work, and the etching on copper, were made by the two brothers, who were contemplating the publication of a second series, to be executed in the same way, when their attention was directed to Lithography, then recently invented and introduced into this country. A con-

sideration of the capabilities of the new art, and a series of trials having led them to the conclusion that it offered more scope for their style of drawing, which was daily becoming more free and masterly, they soon felt confidence in their ability to produce works worthy of public approbation and support, and all their future efforts in publication were confined to chalk drawings upon the stone.

The second series above alluded to,—“Eight Select Views, in the County of Caernarvon, drawn from nature and on stone, by George Nicholson, and printed by Charles Hullmandel,”—is without date. But it is more than probable that it is to this publication a circular refers, dated July, 1827, from which the following is an extract: “In submitting this work to my friends, I feel aware that there is much occasion for requesting their indulgence, both on account of its having been so long delayed, and for now producing it executed in a different manner from that in which it was expected to appear. A variety of circumstances, too painful to repeat, having prevented me from engraving my plates on copper, and the art of Lithography having attained a degree of perfection, which gives the character of nature with as much certainty as in the original drawing, I have thought it advisable to avail myself of it, and hope my friends, who favoured me with their support, will be satisfied with the manner in which they are executed.”* The plates in this volume are in imitation of fine Chalk Drawings. The impressions in the copy before me are printed on India paper.

Subsequently to these, George executed in the same style several drawing books for learners, some of which are in my possession. The great excellence which he attained in

* These views are—Conway, Llanberis Vale, Snowdon, Nant Frangon, Llyn Idwal, Twll Dŷ, Rhaiadryr ir Ogwen, and Pont y Menai. A beautiful emblematic Inscription, to the Countess of Derby, precedes the views.

the execution of these works on stone arose, doubtless, from the increasing pleasure which he experienced in the new mode of producing them, the medium admirably admitting the reproduction of the freest strokes of his pencil, and drawing on stone being more congenial to his taste than etching on copper. The earlier ones, were printed by Hullmandel, the later ones by Day.

As a series of impressions, illustrative of the method pursued in the production of a Chromo picture, would much more clearly explain the process than any mere description, such a series is here presented.

An ordinary tinted Lithograph, for which three or four printings only would be required, might have sufficed for this purpose, but, in order to encourage the obviously growing taste of the day, something more elaborate has been produced — a *fac-simile* of a water-colour drawing. A young Liverpool Artist, of great promise, Mr. H. B. Roberts, whose works find ready purchasers, has prepared a drawing which it is hoped will be acceptable to those who take an interest in such matters; to whom it may be satisfactory to know that the artist has kindly put upon the stone so much of the picture as was necessary to furnish a key for the whole; that is, the stone to impressions from which all the impressions from the other stones must be adjusted. But though it is indispensable that this key-stone shall be first prepared, it does not follow that it must be first printed from — it is usually the last.

The following extract from a *Memoir of Lithography*, quoted in the preface to one of the works published by the brothers Nicholson, the date of which is 1821, will explain the process, so far as a single printing is concerned; and it is only necessary to state that the more elaborate works are produced by repeating the same process for each of the colours introduced :

“Lithography is founded on mutual and chemical affinities, which hitherto have never been applied to the art of Engraving. The dislike which water has for all fat bodies, and the affinity which compact calcareous stones have for both water and greasy substances, are the basis on which rests this new and highly-interesting discovery. The art of Lithography may be divided into two parts; the first consists in the execution of the Drawing, on a stone which has been made perfectly smooth and level, with an ink composed of greasy materials, in the same way as one would execute a drawing on paper with common ink. The second consists in obtaining impressions from the stone. To obtain these impressions, the printer wets the whole surface of the stone; but as the greasy ink which constitutes the drawing has a natural aversion for water, those parts of the stone alone which are not covered with the ink imbibe it. The printer, while the stone is still wet, passes a thick and greasy ink over its whole surface; and the lines of the drawing receive the ink, while the wet surface of the stone refuses to take it. A sheet of paper is now strongly pressed on the stone, which, receiving the printing ink that has been applied to the drawing, gives a reversed *fac-simile* of the original one. The stone is wetted afresh, and afresh charged with ink, and thus a series of impressions are obtained.”

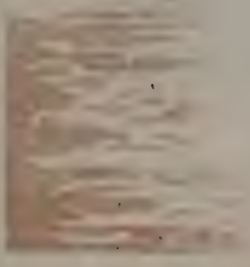
It may be stated that the plan here described is, with but little variation in some minor respects, that which is followed at the present day.







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FIRE, AND FIRE-MAKING : A CHAPTER IN THE HISTORY OF CIVILISATION.

BY JOHN NEWTON, M.R.C.S.

“FUSEES, only a ha’penny a box !” “Vesuvians, three boxes for a penny !” I am afraid that I have chosen a very vulgar subject, of which we all hear too much. The means of fire-making in this year of our Lord, 1867, are only too facile and abundant. Ladies tread upon lucifers, and set their dresses on fire. The smoker’s match carelessly thrown away has become a social nuisance, the great source of conflagrations now-a-days. One Insurance Company has lately reported that its losses from fires caused by lucifer matches alone amount to not less than £10,000 annually ! In this complex civilisation of ours, we are surrounded from our birth—rich and poor alike—with social aids, refinements, and luxuries innumerable. Every one of these things has a history, and had a beginning. And I know no better way of realising to oneself the enormous progress which has been made by the most advanced races of mankind than to take some one of our great social needs and write its story.

About eighteen hundred years ago, Plutarch wrote an essay on the theme, Which was the more useful to man, water or fire ? “*Aqua aut Ignis utilior ?*” The question would be infinitely more difficult to answer now. Yet there was a time, strange to say, when the use of fire, even in the humblest way, as ministering to social comfort and human protection, was unknown. Men saw the lightning fill the heavens with its brightness, and fire the pines of the forest, yet were ignorant of any method by which they could make it subservient to

their daily needs. No wonder that the ancient Greek writers, as Æschylus and Diodorus, vividly realising the ignorance of primitive humanity, described the fathers of our race as the most weak and helpless creatures imaginable, like the famous Egyptian frogs, only half developed from the primæval slime. It must certainly be conceded that man, without arms or arts, must have been the most helpless of animals, since he alone is thrust naked into the world, unprovided with one single weapon of defence. If in his infancy of knowledge he had been forced to contend against the myriads of wild beasts, and the long winters of a cold northern clime, he could not have held his own in the struggle for bare existence, far less have made any social progress. His first home, then, must have been in some sunny eastern land, where bleak winter was almost unknown, where the trees were never without leaves or fruit, where shelter and clothing, storehouse and barn would be little needed, where the earth yielded abundant increase without tillage, and where the sheep and the goat offered themselves as passive subjects for man. Such then must have been the cradle ground of the human race; until, their faculties strengthened by exercise, and their experience of natural things enlarged, they were fitted to go forth into new climes and strange regions, to commence the colonisation of the world. To this conclusion, indeed, the whole stream of ancient history and tradition tends; while the recent study of comparative grammar and antiquities has furnished overwhelming new proofs, that in Central Asia, by the banks of the Euphrates or of the Indus, the earliest forms of civilisation, of language and the arts took their rise.

Who, then, was the first man that discovered a practicable mode of making a fire? A discovery so great, that in comparison with him, Watt and Faraday and Wheatstone were but the inventors of toys. If we refer to the Book of Genesis,

which embodies the earliest traditions of the ancient Hebrews, not a word on so interesting a subject is to be found. Though artificial fires are continually mentioned or understood, there is not one word either in the earlier or later Hebrew books as to how they were kindled. The ancient Greek and Roman literature will supply us with more definite information. Thus, the Greeks fabled that Prometheus, a god, the friend of man, pitying his forlorn condition, stole the sacred fire from Zeus (or Jove), and brought it as a gift from heaven to earth. Such is the legend as given by Hesiod (800 B. C.) Æschylus (484 B. C.), in his tragedy of *Prometheus Vincetus*, represents Prometheus as speaking thus :—

The secret fount of fire
I sought, and found, and in a reed conveyed it,
Whence arts have sprung to man, and life hath drawn
Rich store of comforts.

For which benevolent theft, he was chained to a cold craggy rock in the wastes of European Scythia. Cicero says (*Tusc. Quest. ii. 10*) that he stole the fire from the volcano of Lemnos, which was itself supernaturally kindled. The Latin poet, Lucretius, as an epicurean philosopher eschews all miracles, and ingeniously conjectures that fire might have been derived by men—first, from a conflagration produced by lightning, afterwards from observing the effects of friction on dry wood. The passage is worth quoting :—

Illud in his rebus tacitus ne forte requiras,
Fulmen detulit in terram mortalibus ignem
Primitus, inde omnis flammaram diditur ardor.
Multa videmus enim caelestibus inlita flammis
Fulgere, cum caeli donavit plaga vapore.
Et ramosa tamen cum ventis pulsa vacillans
Aestuat in ramos incumbens arboris arbor,
Exprimitur validis extritus viribus ignis

Et micat interdum flammai fervidus ardor,
 Mutua dum inter se rami stirpesque teruntur.
 Quorum utrumque dedisse potest mortalibus ignem.
 Inde cibum coquere ac flammae mollire vapore
 Sol docuit, quoniam mitescere multa videbant
 Verberibus radiorum atque aestu victa per agros.

F. Lucreti Cari, *De Rerum Natura*, v. 1091—1104.

“Lest, on these things, you ask in silent thought this question:—it was lightning that brought fire down on earth for mortals in the beginning; whence the whole heat of flames is spread abroad. For we see many things shine inwrapped in heavenly flames, when the stroke from heaven has given to them its heat. And again, when a branching tree sways to and fro under the buffetings of the winds, pressing against the boughs of another tree, fire is forced out by the power of the violent friction, and sometimes the burning heat of flame flashes out, the boughs and stems rubbing against each other. Either of these (accidents) may have given fire to men. Next the sun taught them to cook food and soften it with the heat of flame, since they would see many things grow mellow, subdued by the strokes of the rays, and by heat throughout the fields.” Lucretius evidently believed that the most ancient artificial method of obtaining fire was by rubbing two pieces of dry wood together. And there is no reason to doubt, as we shall see, that he was correct. In the Homeric Hymns (Merc. iii.), written perhaps eight hundred years before the Christian era, this primitive invention is ascribed to the god Hermes. The word *πῦρεϊον*, mostly found in the plural form, means (Liddell and Scott in voc.) “pieces of wood, one of which was rubbed against another until they caught fire.” Fire-sticks, as we should say, like the Latin *igniaria*. “The stationary piece was called *εσχάρα*, the piece turned rapidly round *τρύπανον*. Theophrastus, *Ign.* 64.” This writer lived three hundred and twenty-two years

before Christ. Plato (400 B.C.) has this allusion in his *Republic*: "And perhaps by considering the two cases side by side, and rubbing them together, we may cause justice to flash out from the contact, like fire (ἐκ πυρρίων) from the fire-sticks."

Such then are the earliest notices to be found in ancient literature of primitive fire-making. But the literature of ancient Greece is comparatively a thing of yesterday, when contrasted with the antiquity of the human race. For the art of writing is a modern invention which came in with the iron age. The Homeric Hymns did not exist three thousand years ago, whilst the flint implements which have been found associated with the remains of the mammoth and other extinct animals in the alluvial gravels of France and Southern England, are considered by Sir Charles Lyell and other geologists as proving the existence of the human race in these lands a hundred thousand years ago. That we may be enabled to grasp, though but feebly, this long dim unhistoric past of our race, let us enumerate briefly the great epochs into which it has been divided.

First, the Palæolithic or Earliest Stone age. The most ancient remains of man yet discovered are probably the large flint tools and weapons (spear heads, knives, and grubbers), found in undisturbed seams of gravel, at depths of ten to thirty feet below the surface, at St. Acheul, near Amiens, and other places in the north of France, and also in the south of England. No trace of pottery or metal has been found with them. They are associated with remains of the mammoth, the woolly-haired rhinoceros, the urus, and other extinct animals. These implements are never polished, and no worked or polished stones, such as stone hammers or clubs, have been discovered with them. Somewhat more recent are the remains found in caves, as at Dordogne, Gibraltar, and elsewhere. These contain also

worked flints, with tools of horn and bone, but no polished stone implement, nor any trace of metal. They seem to have been made by a small race, like the Esquimaux, whose principal food was the reindeer, from which this has been called the reindeer period. The bone implements are often highly polished, and rudely carved. Drawings of reindeer, and of a mammoth, have been found upon them. *Associated with these remains, burnt charcoal, and other proofs of the use of fire, have been frequently found.*

Second, the Neo-lithic, or Later Stone Age. Polished stone axes and perforated hammers, with hand-made pottery, distinguish these remains, which are found associated with bones of still existing animals only, such as the ox, sheep, pig, goat and dog. Agriculture had begun. Flax was cultivated and woven into tissues. These remains are never found in the river-drift gravel beds, nor associated with the extinct mammalia. Abundant evidence of the use of fire is found, but the use of metals was still quite unknown. The earliest Swiss lake-dwellings and the Danish shell-mounds belong to this period. Some of the sepulchral tumuli are of this age, in which flint daggers and highly wrought stone axes, bone, amber and jet ornaments, but no metals, have been deposited with the deceased. In burials of this age, the corpse was often deposited in a sitting position within a stone cyst, or it was burned.

Third, the Bronze Age. To the age of stone succeeded a time when copper, and still later its compound with tin, bronze, was extensively used for tools and weapons, the earliest implements being copies of the more primitive stone ones. Many of the Swiss Lake Villages, and the tumuli and barrow-graves, belong to this period. The pottery was still made by hand, but much better, larger, and rudely ornamented. There was a considerable com-

merce. Gold, amber, and glass were used for ornaments. But coins and the art of writing were still probably unknown, as also were the other principal metals, silver, zinc, lead and iron.

Fourth, the Iron Age. This metal was now first used for cutting instruments and weapons, though bronze continued to be much employed. Silver now appears, chiefly for ornaments, and coins began to be used. The art of writing was discovered, and the historic period commenced. It may serve to shew the great antiquity of even the iron age in the east, the birth-place of mankind, if we recal that iron clamps are occasionally found within the great pyramid of Ghizeh, which, according to the most moderate recent estimates, are at least four thousand years old. It is worth noting here that in the book of Genesis (iv. 22), Moses describes Tubal-cain, of the fourth generation from Adam, as an instructor of every artificer in brass, (copper) and iron. A proof, surely, that this book was written long after the commencement of the iron age in the east, when the previous phases of civilisation had faded from the memories and the traditions of mankind. The iron age of civilisation had not reached these shores when Cæsar landed in Britain (B. c. 55), though the races whom he encountered were armed with bronze weapons, and used coins.

Thus have we taken a rapid survey of the various stages through which the human race appears to have passed, and have found that the very earliest who left any enduring monument were fire-makers. Is it possible, in the absence of all history or literature, to discover what methods they used? Most assuredly it is. For every phase of civil culture may be studied yet in living examples; that which was but a temporary condition of the more highly endowed races, continuing longer permanent in others. Nay, we may discover tribes more primitive in their mode of life than the

earliest of those who have left any trace behind in the region of antiquities. For the fashioning of stones and flints to form a hundred useful tools and weapons, as knives, wedges, pikes, and arrow-heads, demands much dexterity, and bespeaks a certain advanced cultivation. But the natives of Australia and of Terra del Fuego, are many grades below this. Thus, Captain Cook, describing the aborigines of Van Diemens Land in 1771, says, the natives whom he saw were quite unclad, except with a piece of Kangaroo skin, just as stripped from the animal, which, if scanty, they hung on that side of their bodies towards which the wind blew. Their only weapon was a hard straight stick, sharpened at the end, their only cutting instrument a shell. Their houses were holes in the ground, covered with sticks, or hollow trees; their principal food small birds and shell-fish, heaps of shells being found about their rude hovels. Yet even these wretched beings knew how to obtain fire, which they did by rubbing together two pieces of dry wood. The process, however, being one involving considerable labour, particularly in damp weather, great care was taken to prevent the fire, when once lighted, from becoming extinguished. For this reason they often carried with them a cone of banksia, which burns slowly like amadou. Thus then, we have traced fire-making to its lowest method; which way, as Lucretius guessed, had been suggested by observing the accidental effects of friction on wood, especially in tropical countries. Thus in Borneo and Sumatra, they are often able to obtain sparks by simply striking together two pieces of split bamboo. In the South Sea Islands, they obtain fire by rapidly rubbing to and fro a blunt-pointed stick along a groove of its own making, in a piece of wood lying on the ground. But this "stick and groove" process is not practised in any other region. Another mode, which may be called the "fire-drill," is the one still universally practised by many tribes of men

all over the world. It is so well described by our late honorary Secretary, Dr. Collingwood, in his *Rambles of a Naturalist*, as he saw it in Borneo, that I cannot do better than copy his description, (p. 228.)

“A heavy shower of rain having driven us to the shelter of our huts, we sat and amused ourselves with chatting with the good-natured Malays who accompanied us. My request that they would make fire was answered by one of the Malays selecting from among our fire-wood a dry stick, of hardish wood, about fifteen inches long, which he cut into the form of a thickish lath, and having also made a small notch on the narrow edge, stick number one was ready for use. Taking a smaller piece of wood of the same kind, about nine inches long, he pared it into a cylindrical shape, and cut one end straight off. Then placing the long stick on the ground with the flat side uppermost, and setting his feet firmly upon the two ends, he put a piece of paper under the notch, and taking the small stick between both hands, as he squatted before it, adjusted the flat end to the smoothed surface of the larger stick immediately adjacent to the notch. He then rotated the small stick rapidly between his hands, pressing it down upon the larger one, until by degrees a round hole was formed, and a ligneous powder was produced, which fell down the notch, and formed a little heap upon the paper. After having thus rubbed for about two minutes, the powder began to smoke, and then turning black, as the increasing heat charred it, suddenly became red hot, and the tinder thus formed only required a puff of breath at this critical moment to ignite the paper beneath. The exertion required was considerable, but of short duration.”

The geographical range of this simple method is immense. It continues still to be used, by tribes who have long been acquainted with the flint and steel, as by the Dyaks in Borneo, and the Russians in Kamschatka; many carrying flint

and steel in their pouches, whilst others still carry the fire-stick. It is so handy, and the materials for practising it are so universally to be met with, that if it were not for the special knack, education one might say, needed for success, this method of fire-making would still be a great boon to many a belated traveller and shipwrecked mariner. Sir S. Baker, in his *Nile Tributaries of Abyssinia*, p. 541, describes vividly the method as he saw it practised amongst the Arabs; and then adds, "although in Arab hands the making of fire appears exceedingly simple, I have never been able to effect it. I have worked at the two sticks until they have been smoking, and I have been steaming, with my hands blistered, but I have never got beyond the smoke." And Mr. Galton, in his capital book, *Art of Travel*, candidly acknowledges that though he had made many attempts, he had been equally unsuccessful. Some tribes have been met with who had advanced a stage, and instead of rotating the upright stick with the hands alone, they used a cord passed round it, or the drill-bow, by which means they obtained rapid rotation with less labour. There is a distinct reference to this method of assisting rotation in Homer's *Odyssey*, ix. 382. That the wooden friction apparatus is the most ancient of all methods of fire-making is further curiously established, by its constant association with the mysteries of a "sacred fire" in all countries and all ages. Thus, among the ancient Romans, from the earliest times, a perpetual fire was maintained in the temple of Vesta, and certain virgins, chosen from the noblest families, watched the sacred flame night and day. If by any neglect the fire became extinguished, which was looked upon as a great calamity, it could not be relighted from any ordinary fire, since that was considered impure. Festus expressly tells us that the Vestal virgins were in such a case punished by scourging; and the high-priest made pure fire anew by drilling into a board of

auspicious wood until fire came. To this day the Brahmins rekindle the sacrificial fire by drilling one piece of arani wood into another. In the ancient Sanscrit, the name of the upright stick or spindle is *pramantha*, which seems to recall the Aryan legend of Prometheus, the fire-maker. Sun-worship in some form or other is to be found in almost every ancient faith. And in honour of the sun-god, a perpetual fire was kept up as his emblem. It has lingered amongst us, in some form or other, even to the present day. Perpetual fire was maintained in a small cell near the church of Kildare, even down to the suppression of the monasteries. It was kept up by virgins of high rank, who were called *inghean an dagha*, or daughters of the fire. Relics of this Baal-worship are to be found still in the bonfires lighted on midsummer eve, round which the people dance, and then finish by jumping through the flames. The need-fire as it is called among us, or *nöthfeuer* as the Germans call it, which is supposed to purify all those who pass through it from diseases, is evidently of the same origin, and this fire is always kindled by the friction of two pieces of wood. Miss Martineau, only two years ago, thus described this curious superstition as still existing in Cumberland:—"In the pastoral valleys, the trouble occurs now and then that the milk will not churn. Elsewhere the causes of this are understood, and cow and milk are treated accordingly. Not so here. The cow is at once concluded to be bewitched; and it is apprehended that she will spread the witchery to the whole dairy. So, instead of any sensible method, the remedy tried is depositing in the cow-house some soil from the nearest churchyard. As it is probable that this fails, time is lost in other proceedings. Stirring with a stick from the rowan tree is one of the least troublesome. If the cows are dis-tempered, it is actually a practice in many of the dales to light 'the need-fire,' notice being given throughout the

neighbouring valleys that the charm may be sent for if wanted. *The need-fire is produced by rubbing two sticks together.* A great pile of combustible stuff is prepared, and the more smoke it can be made to give the better. When lighted, the neighbours snatch some of the fire to hurry home with, and light their respective piles. The cattle, diseased and sound, are then driven through the fire; as some of the Irish, by a remnant of paganism, charm their property, and even their children, by passing or snatching them through the fire. It is said, in a certain Cumberland dale, that when a farmer had driven all his live property through, he proceeded to drive his wife after the cows, saying he should then be freed from all distempers."

Thus do we see the most ancient method of fire-making embalmed in old superstitions, some relics of which have survived even to our day, like straws that have floated down the stream of time.

The next stage in fire-making was the discovery that many hard minerals on being struck with a flint elicit sparks. This method was well known to the ancient Greeks, and they called such minerals *πῦρίτης, πυριτης λίθος*, the fire-stone. These were ores of copper and iron. Nodules of iron ore, which had evidently been used as strike-lights, were found amongst the remains of some Swiss lake-dwellings of the Bronze age; which may well be, according to M. Morlot's estimate, four thousand years old. This method of obtaining fire, where suitable minerals can be obtained, is much easier than the fire-stick, and is a great advance over that method. Both modes are practised by the same tribes in many parts of the world. Some tribes of Esquimaux practise this method alone, for wood is unknown to them. With the advent of the Iron age, the flint and steel would soon come into use. But I have only found one passage in any early Greek or Latin writer

distinctly referring to it. They appear rather to describe the second method, the flint and pyrites. Thus Sophocles (B. C. 468) represents Philoctetes as telling how he obtained fire :—

. . . εἴτα πῦρ ἂν οὐ παρῆν
ἀλλ' ἐν πέτροισι πέτρον ἐκτρίβων, μόλις
ἔφην' ἄφαντον φῶς, ὃ καὶ σωζει μ' αἶει.

Fire there was none, but, striking stone with stone,
I drew the latent spark, that warms me still,
And still revives.

Virgil, in his *Georgics*, i. 135, mentions amongst other things which Jupiter taught men, the mode of obtaining fire from the flint stone :—

Ut silicis venis abstrusum excuderet ignem.

And force the veins of clashing flint t' expire
The lurking seeds of their celestial fire.

DRYDEN.

Again, in the *Æneid*, i. 174, on the landing of Æneas after the shipwreck :—

Ac primum silici scintillam excudit Achates
Suscepitque ignem foliis, atque arida circum
Nutrimenta dedit, rapuitque in fomite flammam.

At once Achates struck a spark from flint,
Received the fire in leaves, placed round the heap
Dry twigs and moss, and fanned them into flame.

In the following passage, Lucretius (40 B. C.) distinctly alludes to both methods :—

seu lapidem si
Percutiat lapis aut ferrum ; nam tum quoque lumen
Exilit, et claras scintillas dissipat ignis.

De Rerum Natura, vi. 161.

“Just as if a stone were to strike stone, or iron, for then too light bursts out, and fire scatters about bright sparks.”

We may therefore safely infer that before the Christian era the flint and steel were well known. I have not been able to find one word on this curious subject in any Dictionary of Antiquities.

And so for two thousand years certainly flint and steel have been in use, down to our own day, having displaced throughout Europe the more primitive methods. Forty years ago, not a house, I suppose, could be found in England without its tinder box, and now it has disappeared utterly, and passed into the region of antiquities! I have had much difficulty in procuring the two specimens exhibited. The one, a very primitive wooden affair, was found by a relative in a Wiltshire cottage, the other is the form that I remember having seen in constant use. It is simply a circular box, with a handle; the lid having a socket for a candle in the centre of it. On the bottom of the box, the tinder was placed, over which a false lid dropped, and upon this inner lid were placed the flint and steel. The latter was made in many shapes, that of a diminutive horse-shoe, and of a stirrup, were the commonest. How well do I remember the laborious details of fire-making when I was a child! The ancient house, and the old oak furniture, and the diamond windows accorded well with the primitive rite. Every week rags were burned afresh to supply the tinder box, which stood handy by the kitchen fire, not the least important article of furniture. Curiously did I watch the servant, on a cold dark winter's morning, striving to set the tinder a-light. Perhaps it had become damp, not having been recently prepared, for it readily attracted moisture. Then it was almost in vain that she sent spark after spark from the steel upon it. Not one would catch. If so, there was nothing for it, but to sally out with the lantern, and bring back the initiatory fire from some neighbour's hearth. Or the passing watchman supplied it from his great horn lantern. Usually, however, the

tinder easily caught. Then she brought forth a huge bunch of clumsy matches tipped with sulphur. One of these, applied to the spark in the tinder, stimulated by a puff, took flame. A candle being forthwith lighted, the difficulty had ceased. Nevertheless the process was so troublesome, and so uncertain, that it was usually avoided in the districts where coal is cheap, by keeping up the kitchen fire night and day. This fire having burned low before the family retired for the night, a long piece of coal was selected, and this "raking coal" was stuck down into the still burning embers; the slack was heaped around to keep all quiet, and thus it was left. In the morning, the servant had only to break the big coal, already well a-light at its lower end, and the kitchen fire, the stock fire, was made. The traveller usually carried about with him an iron box, having inside a flint, and a bit of singed wick, with which he laboriously strove to get a spark for his pipe.

I found this summer that the peasants and guides in Switzerland were still using the same method. Amadou is used by them for tinder, over which, however, it has no advantage. A pretty little gilt box, having a stout rim of steel, is still sold at the tobacconists' shops here. It is preferred by old sea-captains, and has a piece of agate, which is said to give a hotter spark than flint. This is the only form of the old flint and steel that is now to be seen. During the present century, several attempts were made to render the process easier. One form was a kind of flint-lock pistol, without a barrel. In lieu whereof, the sparks fell into a little box, containing tinder. I possess a pistol tinder-box, and it certainly was an improvement.

Other methods for obtaining fire of considerable antiquity have been occasionally used. Such as the burning lens or mirror, which, by concentrating the sun's rays, would give heat enough to inflame dry moss or wood. This appears to

have been known in Greece two thousand two hundred years ago, as it is mentioned by Aristophanes. Blacksmiths in country districts have often lighted their forges by hammering a bit of iron sharply on the anvil, until it became very hot, then dipping it into brimstone or charcoal. But such methods are of no importance since they can only be of very partial use.

M. Dobereiner, a German chemist, invented a most ingenious fire-producer. This consisted of a little apparatus for generating hydrogen gas, which is readily inflamed by coming into contact in the air, with spongy platinum. It was only necessary to turn the tap, a jet of the gas blew on a little platinum ball, which became red-hot in a few seconds. The gas caught fire, and a light could be at once procured by a little paper spill. At one time, 1830-40, these Dobereiner's lamps were much used. They are both elegant and efficient, but not portable, and the first cost is considerable. They have quite disappeared from daily use, and are only to be seen in the laboratory of the chemist, or in some old curiosity shop.

Another method, which came into use about the same time, depended for its success on utilising the heat developed during the rapid condensation of air. Into a brass cylinder was fitted a solid piston, having a bit of German tinder in the end of it. When this piston was rapidly thrust down, sufficient heat was sometimes developed to fire the tinder.

About the same time, or a little earlier, a kind of lucifer match was first invented. It had been known for some years that if a mixture be made of chlorate of potash (potassic chlorate), with sulphur and sugar, it will burst into flame on the addition of sulphuric acid. Advantage was taken of this by coating the ends of small wooden or pasteboard matches with the mixture, rendered adherent by glue or gum water, which would immediately inflame on being dipped into sulphuric acid.

Thirty years ago this match came greatly into use. Little pasteboard boxes, containing fifty matches, with a small bottle of sulphuric acid (prevented from spilling by a little asbestos), were sold for threepence to sixpence. Of course the bottle was a great nuisance. Sometimes the acid got on to the clothes. Besides, it was difficult to find the mouth of the bottle in the dark, and the fingers might be burned in doing so. Phosphorus matches then began to appear, and it is strange they had not done so before. This extraordinary substance had been known to chemists ever since 1669, in which year it was discovered by Brandt, an alchemist. It is manufactured from bones, also from guano, both of which substances consist principally of lime united with phosphorus (calcic phosphate); and so enormous is the demand for it, that nearly 400,000 lbs. of it are said to be yearly produced by the English and French manufacturers alone, nearly all of which is consumed in making lucifer matches. It inflames so readily upon contact with the air, that it is obliged to be kept under water. Some forty years ago, phosphorus bottles, as they were called, began to be used. A bit of phosphorus was put into the bottle, and if a sulphur match was pressed against the phosphorus, so as to detach a particle of it, then rubbed quickly against the cork, the match would be inflamed. These were called in France "briquets phosphoriques." Phosphorus was also melted with some yellow wax, and cork raspings added. This mixture would inflame a sulphur match dipped into it. The next step was to coat small sulphur matches with a mixture of this kind. Little boxes of them were sold under the names of "Patent Hyperæans," "Prometheans," "Congreves," &c. &c. A tiny portfolio of sandpaper was found in each box, and the match, drawn rapidly between the compressed leaves, burst into flames. A friend tells me that he once gave half-a-crown for one of these small boxes. They were sold at

the opticians'. The modern lucifer is usually a sulphur match, coated with a composition containing a little phosphorus. The mixture for this second coating may be thus made. Phosphorus, 4 parts; nitre, 10; glue, 6; red lead, 5; smalt, 2; the glue is liquefied with water into a jelly, and whilst kept hot, the phosphorus is added. It liquefies and is readily diffused through the glue. Then the nitre and the colouring matters are added in powder. These phosphorus matches soon became popular, and as no one claimed the discovery or patented it, many persons rushed into the trade, who carried it on in small houses, insufficiently ventilated. A very large proportion of phosphorus was at first considered essential for the dipping mixture. And it was soon discovered that the phosphorus fumes, continually inhaled, produced a most dreadful disease in the bones of the face; the teeth dropped out, and large portions of bone, especially from the under jaw, died and separated from the body. This frightful disease is called phosphorus necrosis. In England the manufacture is now carried on exclusively in certain large manufactories, and the proportion of phosphorus has gradually been reduced to one or two per cent. only in the dipping mixture, the gratifying effect of which has been to render the disease almost unknown here, though in France it is still frequently met with.

There is one of these manufactories in Liverpool, that of Mr. Martindale, which I was courteously allowed to inspect. Perhaps a short account of what I saw may not be uninteresting. The place at first looks like a great timber yard, surrounded by a long line of low buildings which look like joiners' shops. Wood is the great material wanted, both for the matches and also for the boxes. The first process, then, is to cut from the plank across the grain, pieces $4\frac{5}{8}$ inches long, that being the length of two matches; this is rapidly done by means of a circular saw, worked by steam power.

These pieces, about the size of large bricks, are then taken to the match cutting machine ; one of them, held in a kind of vice, is presented to a row of lance-like points, which rapidly pass across the wood, making a series of parallel cuts the width of a match asunder ; a circular knife then descends across the scored face of the block, cutting off a long row of matches, each $4\frac{5}{8}$ inches long. These are rapidly gathered up in baskets, and thrown in heaps before a man, whose duty it is to pack them into bundles, containing about five hundred each. This he does with great adroitness. He takes up a handful, shakes it, arranges the matches all parallel, and fills with them a semi-circular box, across which a piece of string has first been laid. This is at once tied tightly around them, and the bundle is finished. I was told that, with this simple string-box, he could make forty bundles an hour. These bundles are then transferred to a drying-room, kept very hot, where they are stacked on shelves of stout iron wire, just as wine bottles are held by the metallic wine bins. It has been found that sulphur adheres much better to wood thoroughly dried and hot. When the bundles are ready, they are taken to receive their coating of sulphur. This is kept melted for the purpose in a large shallow iron pan, placed over a hot air flue. The workman takes a bundle of the splints, gives it a slight knock on a flat iron table, to secure the ends being quite level, and then dips them a very slight way into the sulphur bath, he then repeats the process with the other end. The bundle is next placed on its side to cool, each bundle is then taken to a cutter, who places it in a kind of wooden vice, across the middle of which a powerful knife is made to descend, and cuts the bundle into two equal halves, thus the five hundred double matches are now made into a thousand single ones. For the next process, it is necessary that the matches be kept asunder ; they are laid in parallel grooves made

on long strips of wood, an inch and a quarter across, each holding a hundred matches. This task was formerly done by children, but is now far more rapidly and cheaply effected by an ingenious machine. At the top of it is a long hopper, into which the matches are poured, they fall on to a grating of parallel wires, a slight lateral shake of which allows a sufficient number of matches to pass through to fill one of the wooden strips, this strip is then transferred to a frame, and an empty one substituted. The frame is in time filled with rows of matches, all arranged parallel, their sulphured ends projecting. Each frame-full is placed face downwards on a shelf, in a sort of scaffold or stage, which when full is wheeled into the dipping-room. There they receive the final coating of the phosphorus mixture. It is kept fluid in an iron trough by means of steam. A man, stationed before it, takes a frame-full of matches, and just dips their sulphured ends slightly into the composition. A very slight application is enough. The matches are then put aside to dry. When set, they are conveyed to the packing-rooms. A frame-full is placed before one of the girls. She takes one of the wooden laths, and dexterously sweeps off the one hundred matches ranged upon it into a box, pushing on the cover. To fill the smaller boxes, she sweeps off fifty only. Thus filled, they are taken away to be labelled and packed in dozens and grosses. The manufacture of the boxes is quite as interesting a process to watch as that of the matches. The planks are shaved into long veneers about $\frac{1}{16}$ inch thick, from which the boxes, and slip-on cases, or lids, are stamped out, to be afterwards put together with the help of an outer paper wrapping and finger paste. At this manufactory, which is not by any means one of the largest, about half a million boxes of matches are made weekly. In the winter they are kept busy supplying the home trade; in the warmer months, the foreign and export trade, which is some-

thing enormous, and increasing rapidly. Mr. Martindale employs about two hundred and fifty persons, of whom one hundred are girls. The latter are engaged in filling the frames, packing and boxing. I was much pleased with the generally healthy and comfortable appearance of the work-people. The rooms were well ventilated, and I was glad to hear that not a single case of the terrible disease, once so prevalent, had occurred amongst them for years. The kind of lucifer match of which I have described the manufacture, is the commonest and cheapest of any. It readily inflames by friction upon any rough surface, but for that very reason is the most dangerous. Some of the French matches have the sulphur coating external to the phosphorus one; these require strong friction to produce a flame, but for that very reason have never been popular in this country. Messrs. Bryant & May have divided the composition between the match and the friction paper, such matches will not inflame by ordinary friction. They use the amorphous phosphorus, first prepared by Schrötter of Vienna. In this state it is a red powder, not readily inflammable. This, diffused through a quantity of glue, with some powdered glass and colouring matter, forms the composition which is spread outside the safety match box. The Messrs. Letchford use no sulphur, but instead soak the end of each match in paraffine. These are not injured by damp, and burn almost without smell. Many of the German and Swiss matches are made without phosphorus, some being dipped in a mixture containing chlorate of potash and hyposulphite of lead; but they are not so pleasant in use as the others.

Enormous quantities of lucifer matches are now exported wherever English enterprise has reached. The very desert around the pyramids of Egypt is strewed with lucifers and bitter beer bottles. The new fire-maker is extinguishing all the old ones. An English manufactory, that of the Messrs.

Dixon, at Manchester, is said to turn out six to nine millions of matches daily. And it is estimated that the total quantity made is at least 300,000,000,000 of matches in a year ! We live not only in the age of Iron, but of Flame. We travel on iron roads, and cross the seas in iron vessels, both propelled by fire. The days of wood and stone are giving place to those of metal and glass, both products of fire. A friend informs me that, so late as the year 1810, the principal water mains in Liverpool were wooden pipes, formed by hollowing out tall straight trees.

Let us recapitulate. We have seen reason to believe that in some far-off time men existed who were utterly ignorant of fire and of its uses, though they have left no trace behind in the region of antiquities. What could they leave ? That men at length discovered a rude and painful method of fire making, by the rubbing together of dry wood ; a method so universally diffused and long practised that it exists still in almost every region of the earth, among rude, half-civilised races, and has come down to us with the traces of ancient and forgotten faiths. At this point, men were content to rest, for probably tens of thousands of years, which have left to us innumerable relics of their work in stone and bone and wood. At length mankind became acquainted with the ores of the more obvious metals, which were first used in the cold state, unmodified by fire. Next the more fusible were wrought ; and when this was extended to the difficultly fusible ores of iron, they obtained the flint and steel, the use of which, as the most improved fire-maker, extended through more than two thousand years, down even to our own time. That within the last fifty years new methods of fire-making have been discovered, so easy, cheap and portable, that they are driving out all the old forms, and seem to leave

nothing further to be desired. Du Chaillu tells us that, some three years ago, he met in his journeyings with a tribe of Africans who had never seen a white man. He asked to see how they made fire. One of them accordingly squatted down, and worked away at the fire-sticks until the perspiration dropped from him. Then another came to his aid, and at length a little smouldering spark was obtained. Du Chaillu took out his tiny box of Vesuvians, and in a moment produced a cascade of flame ! The astonishment of the poor Ashangos was beyond measure. They trembled all over, and became speechless. They would have fallen down and worshipped him, as a god of fire ! What unnumbered ages of social progress did that lucifer match symbolise ! And how much of that progress has been achieved in our time, and even in our own land !

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	Journal of the Society of Arts, vol. 15, nos. 768-776	<i>The Society.</i>
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	Journal of the Chemical Society, June, August, September, 1867	<i>The Society.</i>
	Air-breathers of the Coal Period	} <i>Dr. Dawson, Montreal.</i>
	Conditions of the Depositions of Coal, &c.	
	The Anthropological Review, July and October, 1867	<i>The Society.</i>
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Journal of the Franklin Institute, vol. 84, nos.	
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	<i>American Government.</i>
Annual Report on Epidemic Cholera	<i>American Government.</i>
Proceedings of the American Philosophical	
Society, vol. 10, no. 76	<i>The Society.</i>
Naturalists' Directory, North America—West	
Indies	<i>The Society.</i>
Smithsonian Report, 1865	<i>Smithsonian Institution.</i>
Annual Report of the Museum of Comparative	
Zoology	<i>Smithsonian Institution.</i>
Proceedings of the American Academy of Arts	
and Sciences, March-September, 1866	<i>The Academy.</i>
Proceedings of the Zoological Society, parts	
1, 2, 3, 1867	<i>The Society.</i>
Quarterly Journal of the Geological Society,	
vol. 23, nos. 90, 91	<i>The Society.</i>
Proceedings of the Royal Geographical Society,	
vol. 11, nos. 3, 4, 5	<i>The Society.</i>

Title.	Donor.
Journal of the Statistical Society, September, 1867	<i>The Society.</i>
Proceedings of the Royal Society, vol. 16.	<i>The Society.</i>
Proceedings of the Liverpool Philomathic Society, 1866-7, vol. 12	<i>The Society.</i>
Proceedings of the Chatham Society, 1865-67, vol. 8	<i>The Society.</i>
Journal of the Liverpool Polytechnic Society, May 4th, 1867	<i>The Society.</i>
Westminster Hospital and Medical School Report, 1867-68	<i>The Hospital.</i>
Drift Sections of the Holderness Coast, 1867, by Hugh F. Hall, F.G.S.	<i>The Author.</i>
England's Duty towards India, by Dadabhai Naoroji, Esq.	<i>The Author.</i>

OCTOBER 21st. .

Thirty-Sixth Report of the British Association, Nottingham, 1866	<i>Dr Inman.</i>
Proceedings of the Royal Society, vol. 16, no. 95	<i>The Society.</i>
Thirty-Fourth Report of the Royal Cornwall Polytechnic Society, 1866	<i>The Society.</i>
Proceedings of the Meteorological Society, vol. 3, no. 32	<i>The Society.</i>
Introductory Address delivered at the Liverpool Royal Infirmary School of Medicine	
Abstract of Proceedings of the Liverpool Geological Society	<i>The Society.</i>
Journal of Chemical Society, series 2, vol. 5	<i>The Society.</i>
Journal of the Society of Arts, nos. 777, 778	<i>The Society.</i>

NOVEMBER 4th.

Transactions of the Historic Society of Lancashire and Cheshire, vol. 6	<i>The Society.</i>
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Journal of the Statistical Society of London, June, 1867	<i>The Society.</i>
Proceedings of the Geological and Polytechnic Society, West Riding of Yorkshire, 1865-66 .	<i>The Society.</i>
Journal of the Royal Geological Society of Ireland, vol. 1, part 3	<i>The Society.</i>
Transactions of the Royal Irish Academy, vol. 24, parts 7 and 8, Science	<i>The Academy.</i>
Proceedings of Ditto, vol. 9, part 4	<i>The Academy.</i>
Proceedings of the Royal Society, vol. 15, nos. 92 and 93	<i>The Society.</i>
Journal of the Franklin Institute, April to Sept., 1867	<i>The Institute.</i>
Journal of the Chemical Society, May and July, 1867	<i>The Society.</i>
Annual Report of the Transactions of the Plymouth Institution	<i>The Institution.</i>
Monthly Notices of the Royal Astronomical Society, vol. 27, nos. 6, 7, 8 and 9	<i>The Society.</i>
Proceedings of the Meteorological Society, March and April, 1867	<i>The Society.</i>
Annual Report of the Leeds Philosophical and Literary Society, 1865-66	<i>The Society.</i>
Ezechiels Syner og Chaldaernes, Astrolab of C. A. Holmbøe, Christiania.	
Ungednickte, unbeachtetete und wenig-beachtetete Quellin zur Geschichte des Tanfsymbols und der Glaubens regel, von Dr. C. P. Caspari, Prof. der Theologie au der Norwegischen Universitat, Christiania	<i>The Author.</i>
De Vi Logicæ Rationis in Describenda Philoso- phiæ, Historia ad Ed. Zllerum, Prof. Marbu- gensem Celeberrimum, Christiania.	<i>The Author.</i>
Canadian Journal of Industry, Science, and Art, January 1867	<i>The Society.</i>

Title.	Donor.
Proceedings of the Royal Geographical Society, vol. 11, no. 2	<i>The Society.</i>
Journal of the Scottish Meteorological Society, April, 1867	<i>The Society.</i>
Memoires de la Société Imperiale des Sciences Naturelles de Cherbourg, vols. 11, 12	<i>The Society.</i>
Journal of Society of Arts, nos. 754-780	<i>The Society.</i>
Results of Twenty-five Years Meteorological Observations for Hobart Town, &c.	<i>Royal Society of Tasmania.</i>
Two vols. of Clarks' Ante-Nicene Library, viz., Clement of Alexandria, Tatian, Theophilus, and the Clementine Recognitions	<i>R. A. Macfie, Esq.</i>
Journal of the Royal Geographical Society, vol. 36	<i>The Society.</i>

NOVEMBER 18th.

Journal of the Society of Arts, nos. 781, 782 . .	<i>The Society.</i>
Canadian Journal of Industry, Science and Art	<i>The Society.</i>
Natural History Transactions of Northumberland and Durham	<i>The Society.</i>
Annual Report of the Leeds Philosophical and Literary Society, 1866-67	<i>The Society.</i>
Journal of the Scottish Meteorological Society, October, 1867	<i>The Society.</i>
Quarterly Journal of the Geological Society, November, 1867	<i>The Society.</i>
Journal of the Linnæan Society for November	<i>The Society.</i>
Proceedings ditto 1866-67	<i>The Society.</i>
Journal of the Chemical Society, Nov., 1867 .	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society, October, 1867	<i>The Society.</i>

DECEMBER 2nd.

Greenwich Observations, for 1865	<i>Admiralty Commissioners.</i>
Journal of the Franklin Institute, October, 1867	<i>The Institute.</i>
Journal of the Society of Arts, nos. 783, 784 .	<i>The Society.</i>

Title.	Donor.
Proceedings of the Philosophical Society of Glasgow, vol. 6, nos. 1, 2, 3,	<i>The Society.</i>
Journal of the Royal Dublin Society, no. 36	<i>The Society.</i>
Proceedings of the Royal Institution of Great Britain, vol. 5, parts 1, 2, &c.	<i>The Institution.</i>

DECEMBER 16th.

Journal of the Society of Arts, nos. 784, 5, 6	<i>The Society.</i>
Proceedings of the Royal Geographical Society, vol. 11, no. 16	<i>The Society.</i>
Journal of the Chemical Society, December, 1867	<i>The Society.</i>
Annual Report of the Halifax Literary and Philosophical Society, 1867	<i>The Society.</i>
Transactions of the Institution of Engineers of Scotland, 1867-8, &c	<i>The Institution.</i>

JANUARY 13th, 1868.

Transactions of the Botanical Society	<i>The Society.</i>
Quarterly Journal of the Geological Society	<i>The Society.</i>
Journal of the Statistical Society	<i>The Society.</i>
Journal of the Linnæan Society	<i>The Society.</i>
Proceedings of the Royal Society of Edinburgh, 1866-7	<i>The Society.</i>
Proceedings of the Birkenhead Literary and Scientific Society, 1866-67	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society	<i>The Society.</i>
Writings of Hippolytus	<i>R. A. Macfie, Esq.</i>
Writings of Irenæus, Clarks' Ante-Nicene Library R. A. Macfie, Esq.	<i>R. A. Macfie, Esq.</i>
Journal of the Society of Arts, nos. 787, 790	<i>The Society.</i>
Journal of the Franklin Institute	<i>The Institute.</i>
Journal of the Chemical Society	<i>The Society.</i>

JANUARY 27th.

Journal of the Zoological Society.	<i>The Society.</i>
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Journal of the Society of Arts, nos. 791, 792 .	<i>The Society.</i>
Journal of the Franklin Institute, December 1867	<i>The Institute.</i>
Proceedings of the Meteorological Society, Nov. 1867	<i>The Society.</i>
Proceedings of the Royal Society, vol. 16, no. 97.	<i>The Society.</i>
Anthropological Review and Journal, Jan. 1868	<i>The Society.</i>
Transactions of the Royal Scottish Society of Arts, vol. 7, part 3	<i>The Society.</i>
Journal of the Liverpool Polytechnic Society, January, 1868	<i>The Society.</i>

FEBRUARY 10th.

Journal of the Society of Arts, nos. 793, 794 .	<i>The Society.</i>
Monthly Notices of the Royal Astronomical Society, January	<i>The Society.</i>
Journal of the Chemical Society, February	<i>The Society.</i>
Ancient Faiths embodied in Ancient Names, vol. 1, by Dr. Inman	<i>The Author.</i>

FEBRUARY 24th.

Proceedings of the Royal Society, vol. 16, no. 96	<i>The Society.</i>
Proceedings of the Royal Geographical Society, vol. 12, no. 1	<i>The Society.</i>
Proceedings of the Meteorological Society, vol. 4, no. 34	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
Journal of the Linnean Society, vol. 9, no. 39, Zoology	<i>The Society.</i>
Ditto ditto vol. 10, no. 42, Botany	<i>The Society.</i>
Annual Report of the Transactions of the Ply- mouth Institution, and Devon and Cornwall Natural History Society, 1866-7 .	<i>The Institution.</i>
Forty-third Annual Report of the Directors of the Liverpool Institute, 1868	<i>The Institute.</i>

	Title.	Donor.
MARCH 9th.		
	Journal of the Society of Arts, nos. 797, 798 .	<i>The Society.</i>
	Proceedings of the Royal Society, vol. 16, no. 98	<i>The Society.</i>
	Journal of Liverpool Polytechnic Society .	<i>The Society.</i>
MARCH 23rd.		
	Journal of the Society of Arts, nos. 799, 800 .	<i>The Society.</i>
	Journal of the Linnæan Society, vol. 9, no. 43 .	<i>The Society.</i>
	Ditto ditto vol. 10, no. 44 .	<i>The Society.</i>
	The President's Address, 1867-68, Royal Micro- scopical Society	<i>The Society.</i>
	Proceedings of the Meteorological Society, vol. 4, no. 35	<i>The Society.</i>
	Journal of the Chemical Society, March 1868 .	<i>The Society.</i>
	Proceedings of the Royal Society, vol. 16, no. 99	<i>The Society.</i>
	Monthly Notices of the Royal Astronomical Society, vol. 28, no. 4,	<i>The Society.</i>
	The Golden Sheaf, A Collection of Poems	<i>Dr. Collingwood.</i>
APRIL 6th.		
	Journal of the Statistical Society, March, 1868	<i>The Society.</i>
	Journal of the Society of Arts, nos. 801, 802 .	<i>The Society.</i>
	Report of the Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1867.	<i>The Society.</i>
	Monthly Notices of the Royal Astronomical Society, vol. 28, no. 5	<i>The Society.</i>
	Report on Amputations at the Hip-joints, in Military Surgery, Washington, July, 1867 <i>American Government.</i>	
	Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
APRIL 20th.		
	Anthropological Review, April, 1868 .	<i>The Society.</i>
	Journal of the Society of Arts, nos. 803, 804 .	<i>The Society.</i>

Title.	Donor.
Journal of the Chemical Society, April, 1868 .	<i>The Society.</i>
Journal of the Scottish Meteorological Society, January 1868	<i>The Society.</i>
Proceedings of the Royal Society, vol. 16, no. 100	<i>The Society.</i>
Proceedings of the Meteorological Society, vol. 4, no. 36	<i>The Society.</i>
Proceedings of the Liverpool Architectural and Archæological Society	<i>The Society.</i>
Journal of the Liverpool Polytechnic Society .	<i>The Society.</i>
Views in Modern Liverpool, by Wm. Herdman, in Chromo-Lithography by James Orr Marples and the Artist, with an Introduction and Descriptive Letter Press by J. A. Picton, Esq., F.S.A.	
	<i>Mr. Marples.</i>

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